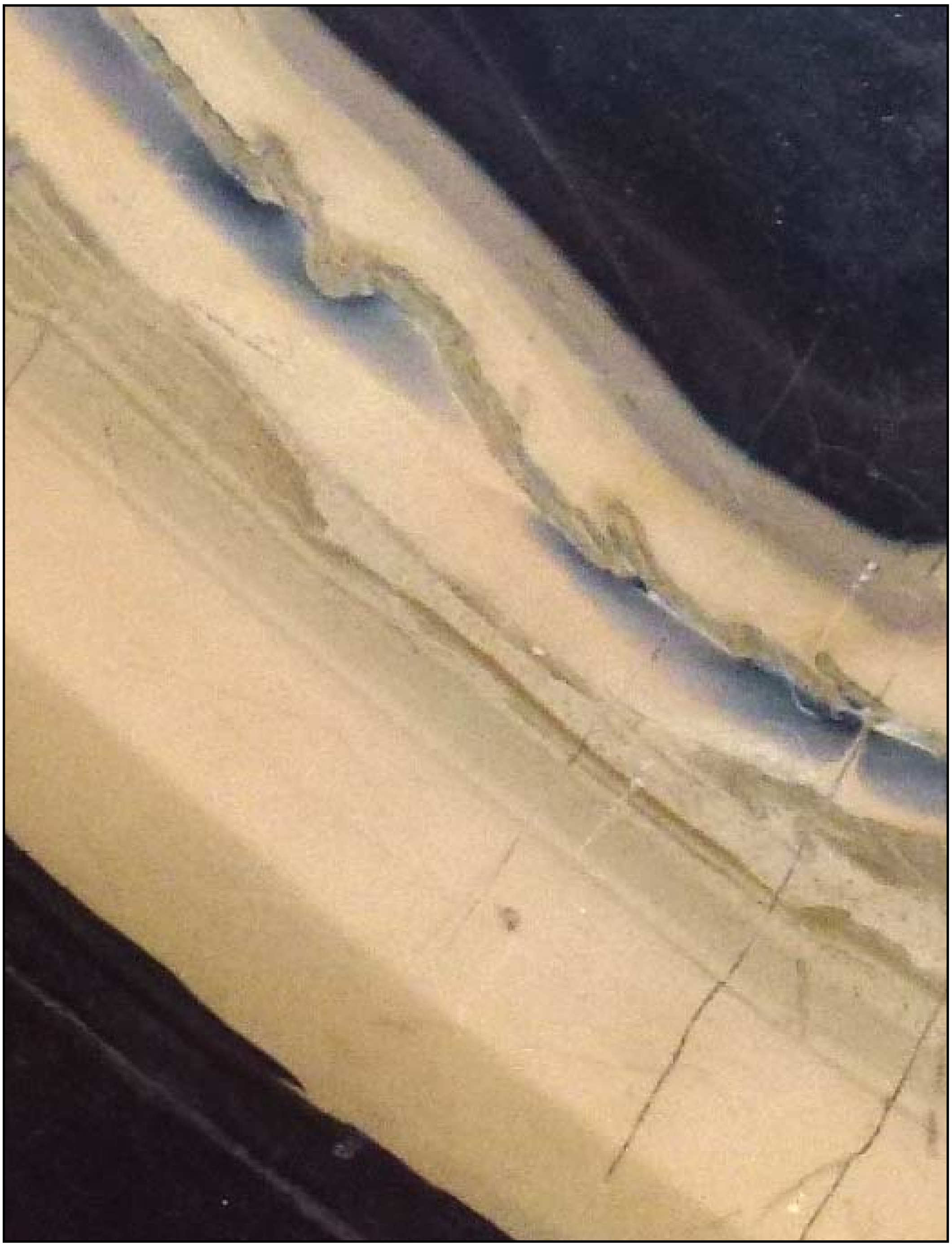


Photo: Janneke Bos

Grinding and Honing Part 4.

Belgian Whetstones

INFO 20M

Information for ship and tool-lovers

Number 73 V 1.1 24 december 2013

INFO 20M
Information paper great pleasure boats and toollovers

The paper "great pleasure boats" is meant for owners, skippers and other interested parties of recreational vessels over 20 meters such as:
- Former inland vessels
- Former Marine vessels
- Former fishing vessels
- Former Navy ships
- Former tugs and pushboats
- Houseboats
- Recreational vessels specifically built for that purpose.

The magazine INFO-20M "great pleasure boats" provides this target group with information about nautical law and the (technical) equipment on board the ship.

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Other organizations may contact the publisher. Info 20M can also be downloaded through the website.

20M is a continuation of the series of information leaflets called M3-magazine, written in the period 1987 to 1995 for Scouting groups with a guard ship (a former barge used as a Scout clubhouse).
M3 magazine No. 1 to 20 can be downloaded via the index on the website (http://www.xs4all.nl/ ~ bds/m3-index.htm).

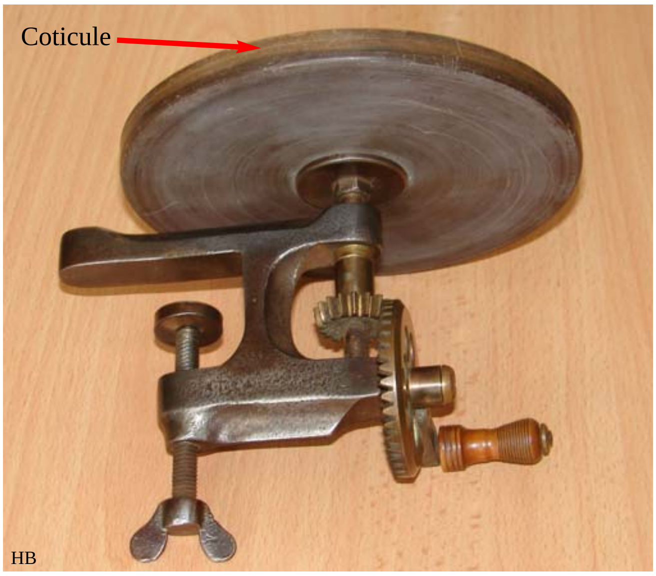
Belgian Whetstones

Preface
During more than 40 years many "facts" about whetstones have been noted and kept by me. This has led to a huge collection of unstructured data.
The "facts" are supplemented with many pictures to enable me to recognize specific whetstones.
After 1982 I wrote a card program that enenabled me to search and find easily in those "facts".
Unfortunately, I have not always noted the source. Especially with pictures I think that is a loss and I can not do justice to the original photographer. I that regret and I apologize for this.
This booklet about Belgian whetstones is an attempt to structurise the slurry of data so information arises.
The booklet is dedicated to the community.

Henk Bos

Content

More information see:
http://www.coticule.be



Sharpening mill for straight razor. Owner Adrspach



Coticule
Grit between 800 and 16,000 depending on the slurry thickness.
Contains 30 to 42% garnets.
At least 40% of the garnets have a diameter of 5-15 micron.
Scratch resistance 800 and > 3000 grams
Density 2.8 - 3.27



Rouge du Salm / Pierre Lorraine
Grit about 6000 depending on the slurry thickness
Scratch resistance 600 - 2000 grams
Density ~ 2.89



Belgian blue
Grit about 4000 - 5000, and includes 20 to 30% garnets with a diameter of 10 to 25 microns.
Scratch Resistance 1200 - 2500 grams
Density 2.82 -3.00



Gres de Cierreux
Grit about 200-800
Scratch resistance 800 - 1200 grams
Density 1.88 - 2.72



Pierre dite Levant
Grit about 1000 - 1500
Scratch resistance 600 - 1000 grams
Density 2.82 - 3:21

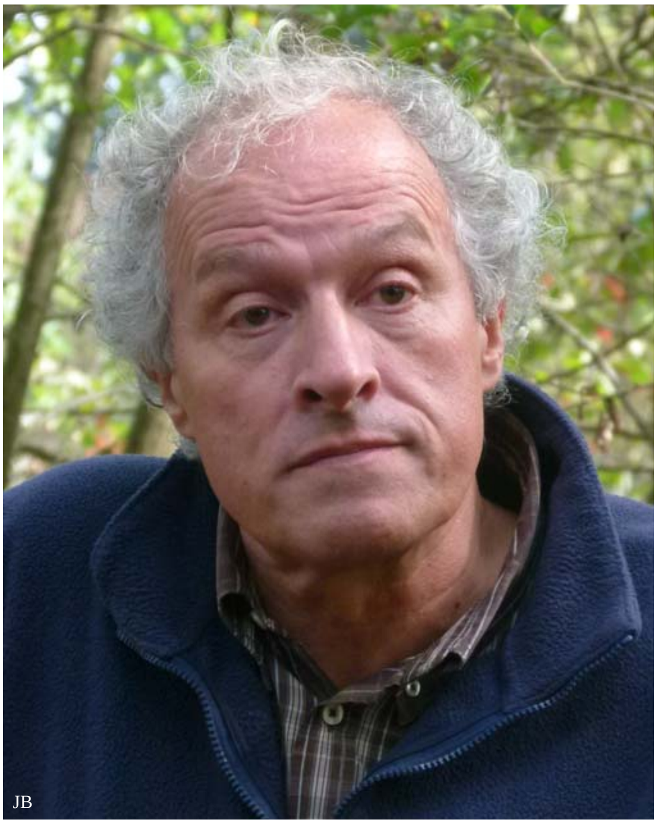


CotPyr
BBW with La Pierre à Aiguiser des Pyrénées
Grit about 1200
Scratch resistance approximately 1200 grams
Density not determined



Cotcarb
BBW with Carborundum
Grit about 600 - 800
Scratch resistance is not measured
Density not determined

Introduction
The reason for this story is the Coticule Pilgrimage weekend from September 20th to 22nd, 2013 in Petit Sart, where I was able to draw on the vast knowledge of Maurice Celis and Bart Thorfs.
They knew to close many gaps in my knowledge with élan.



Maurice Celis is the producer of the famous Coticule and Belgian Blue Whetstone.



Recently the Ardennes coticule received the 'Handmade in Belgium' label. All stones are locally produced and are handmade to the centuries old tradition.



The master sharpener Bart Thorfs organized the weekend, he is the webmaster of http://www.coticule.be . In this story there is made grateful use of the content of the sites.

Coticule

For which I am very grateful.

Coticule
Belgian grinding stones are natural stones and this is reflected in the fact that no stone is like another one.
From core to core, the number of garnet grains varies from 5 to 50%.
Coticules with a content of less than 5% garnets are considered medium.
A good quality has a content of 5 to 20%. The best whetstones are still above this with a garnet content of 20 - 40% and the garnet particles are smaller than 20 microns. At higher percentages the garnets tend to tangle, causing the effectiveness decreases.
The garnets (the crystals that do the grinding work) in the Coticule layer are about 10 to 13 microns in size but pass through the shape of the crystal only approximately 3 microns into the steel.

Equally important for the proper functioning of a stone is the not active material that binds the garnet grains.
The exceptional qualities of the Coticule are mainly due to the perfect balance of a number of components.

The binding of mainly mica and quartz is quite soft, partially exhausted garnet grains are easily detached so new grains can take over the task.
The presence of very fine quartz grains ensures the wear is not going too fast. Incidentally, this perfect balance is not

always present.

What is the grain size of Coticule?
That is a wrong question, but because the question is asked often, we still try to answer it.
Coticules are fundamentally different from synthetic whetstones in the way they edit the object to be grinded. The impression of the grain size is highly dependent on how the whetstones are used.
The speed of the grinding is variable and the level of the polish is adjustable. How fine the cut can be processed depends on the slurry, and the pressure exerted thereon. The special feature of Coticule is that, depending on the slurry thickness and the applied pressure, the apparent grain size can vary from 1000 to 16,000.

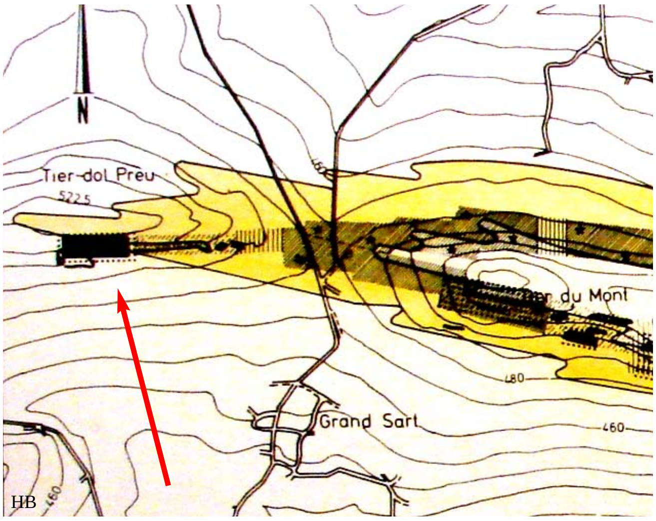
Cutting speed
* Thick, pasty slurry: 1000 - 2000 grit.
* Thinner, milky slurry: 4000-6000 grit.
* Very thin fog-like slurry: 8000-12000 grit.
* Use of water only: 16000 grit

Keenness
* Thick, almost pasty slurry: 600 grit, although less aggressive.
* Thinner milky suspension: 2000 grit, although less aggressive.
* Thin, fog-like slurry: 6000-8000 grit.
* Use of water only: 10000-15000 grit.

Smoothness of the cut
* Thick, almost pasty slurry: the surface looks like sandblasted with a magnifying glass.
* Thinner milky suspension: the cut is significantly smoother.
* Very thin slurry (2 times rubbing with a slurry stone on the whetstone is enough) gives a cut that is suitable for a sensitive skin.
* Used only with water the cut is even smoother and at the very best. The cut has a high lustre with the appearance of grain 15000 and the stone remains eager.
* The cut is made even smoother by the use of instead water of talc (steatite powder).



A dull razor with a damaged cut is sharpened by Bart Thorfs so well that it cut a hair on a cm away from the finger.



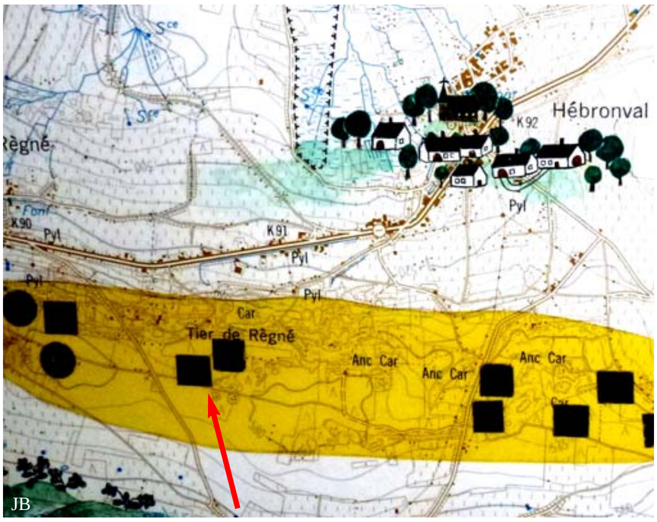
The quarry Thier del Preu (50.27857N 5.84456E) operated by "Ardennes Coticule". It is the last remaining working quarry Coticule in the region.



Maurice Celis owns "Ardennes Coticule "and is producer of the famous Coticule and Belgian Blue Whetstones.



The veins are difficult to access and there must be moved a lot of material to get access.



To ensure the future continuity and quality, "Ardennes Coticule" has bought a mine in Regné (50.24948N 5.79647E).



The shaft is 30 meters in depth. It also comes in handy that Maurice Celis is a mining engineer and knows what he should do.



Maurice sees clear opportunities and explains the direction of the veins.



2 Samples from the Regné mine. La Verte has a scratch resistance of 1500 grams and the Dressante has a scratch resistance of 3000 grams, measured with a sclerometer.

The quarry
The new mine
Coticule qualities

"Standard"
The surface of the Coticule contains shades, also black lines and / or spots. Tiny cracks in the layering of the Coticule, visible on the side of the whetstone may occur. The abrasive properties are not influenced by these factors.

"Selected"
The surface of the Coticule contains besides possible hues no or only a minuscule amount of imperfections such as black lines and / or spots. Again, the abrasive properties are unaffected.

"Kosher"
Both the surface and the mass of the Coticule layer are free of any imperfections. This Coticule usually has a milky white color. These are extremely rare whetstones! See the discussion on Kosher whetstone later in this booklet.

Dimensions

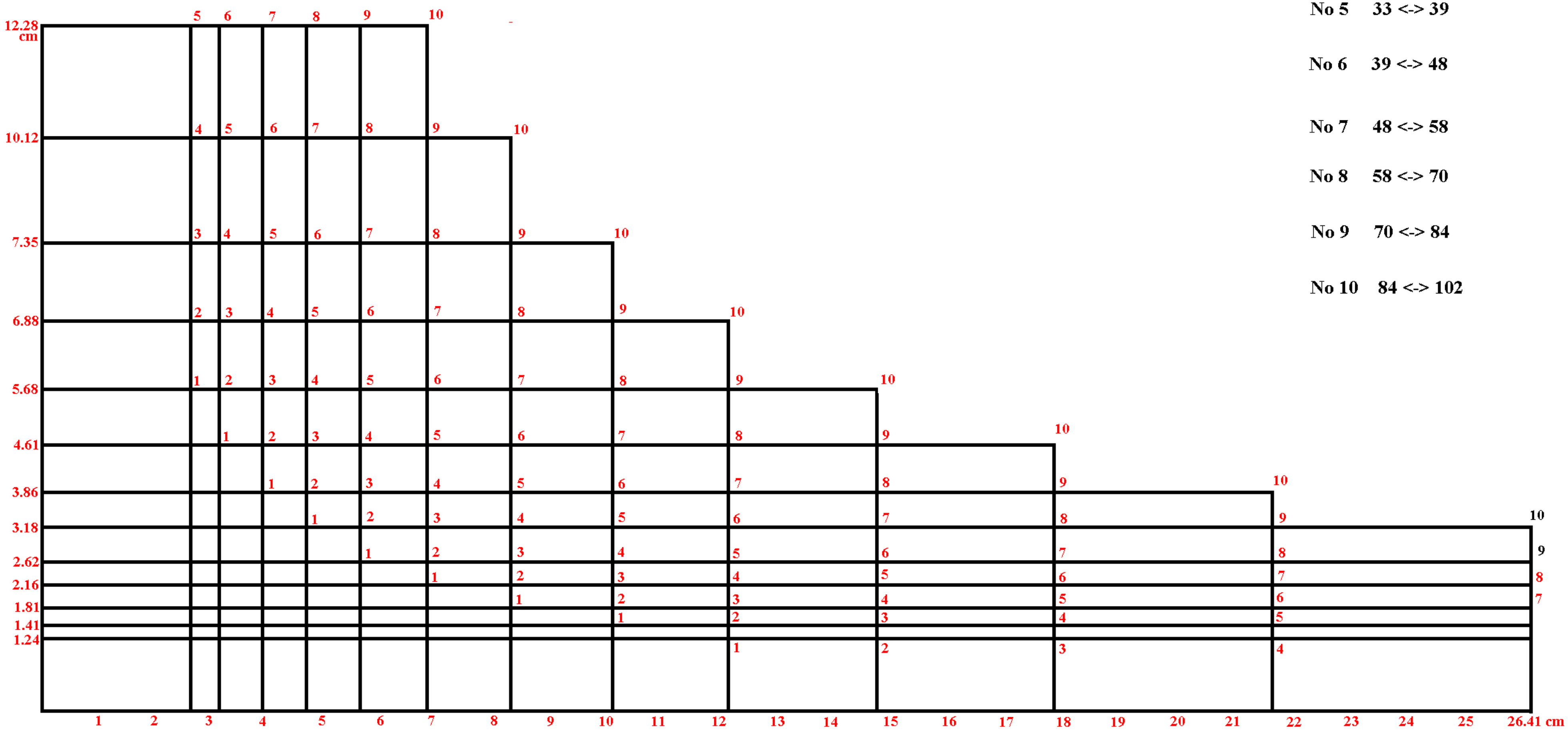
Bank Stone
Coticule whetstones are produced in both rectangular and non-rectangular shape (the Bout de Coticule). The target is to produce a maximum rectangular stones but by the capriciousness of nature only a limited amount of stone is suitable. Stones longer than 15 cm and wider than 4 cm are more often the exception rather than the rule. Fortunately the dimensions referred to are sufficient to wet in many cases a wide range of knives.

Chunks
By the production of non-rectangular stones the waste of precious Coticule is limited to a minimum.
The non-rectangular stones are produced in each imaginary shape.

These are divided into ten categories according to size of the Coticule surface. The production is done by hand and a small tolerance on dimensions is completely normal.
See drawing pg 8.

Minimum size of the chunks

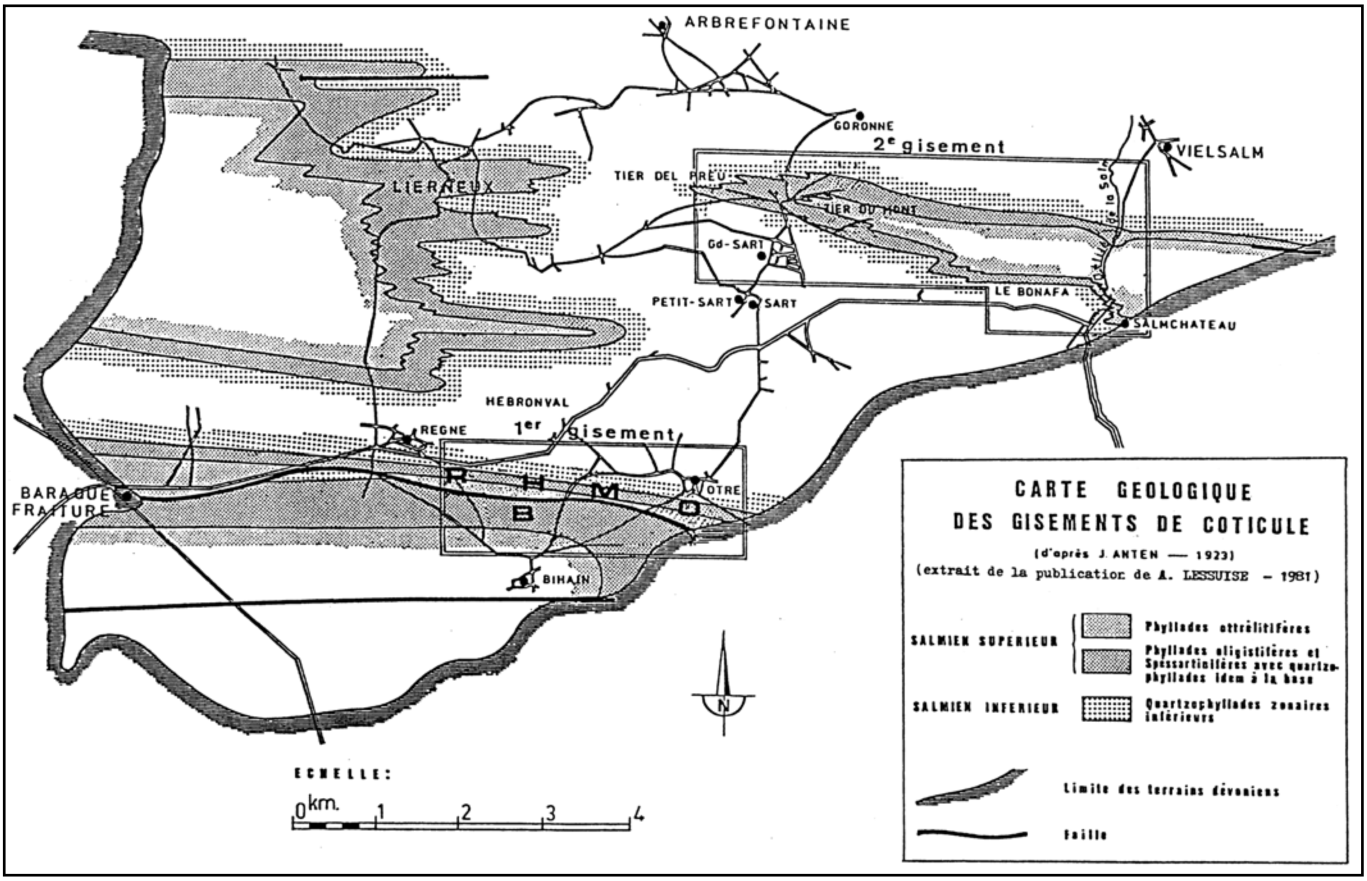
No 1	12 <-> 18
No 2	18 <-> 22
No 3	22 <-> 27
No 4	27 <-> 33
No 5	33 <-> 39
No 6	39 <-> 48
No 7	48 <-> 58
No 8	58 <-> 70
No 9	70 <-> 84
No 10	84 <-> 102



No rights can be derived from this drawing.

Printing so that the distribution cm at baseline is the right size.

Coticule layers in the Ardennes



As far as we know there are three major Coticule "banks". One of these "banks" (deposits) extends from Salmchateau to the West. The Ol'Preu quarry, but also the former Old Rock mines are located along this "bank". The former Coticule pits on Tier Du Mont also are on the same "bank".

There is a second large "bank". This is more to the south and runs approximately from Ottré to Regné. This "bank" houses the Regné mines which "Ardennes Coticule" intends to take back into use.

The third bank is smaller and is located directly below the village of Sart.

There are a few more spots, such as the three layers of Recht, but that is probably a peak of one of these three banks.

Each "bank" consists of a number Coticule veins, called "layers".

To make matters even more complicated, there are some unique names for a bank, such as "La Vielle Rouge" of Regné. But it also happens that the same names are used in different banks.

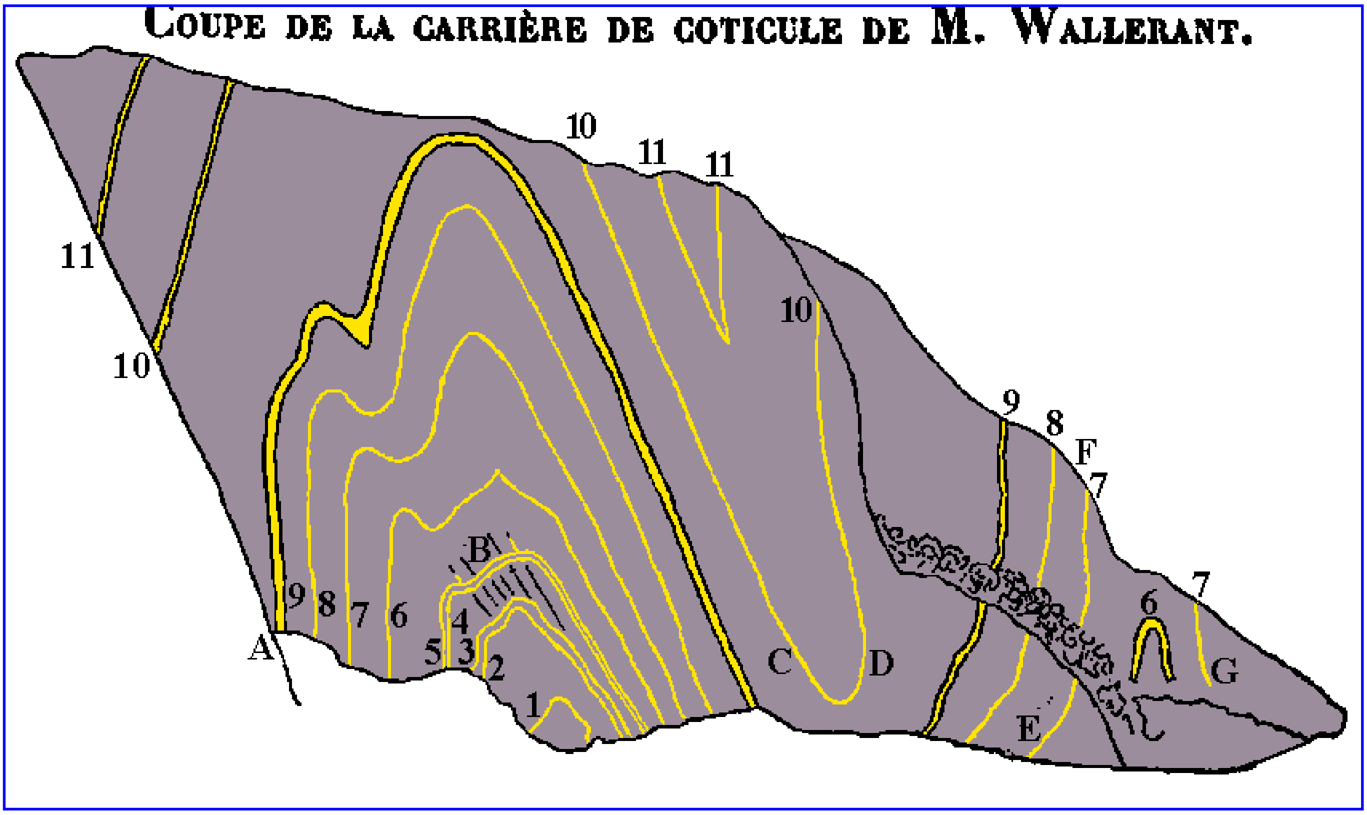
There is a La Dressante at Ol'Preu and a La Dressante at Regné. The two are not related. The layer names were originally used by the miners only.
The names were not meant for end users.

That was long before the Internet came and someone started to map the various Coticule layers and described their various properties...





Coticule layers at Ol' Preu



In 1847 the famous mining engineer André Dumont published a drawing of the eastern wall of the Wallerant quarry. This was a young quarry, located on Ol'Preu and is the only whetstone quarry that is still in business.
Today the distance from top to bottom of the quarry is about 40m, but then it was a good 5m. Dumont measured the thickness of the layers and the distances between them, and made a sketch thereof.
The widow Wallerant was the first owner of the quarry we now know as Ardennes Coticule.

1. Veine-aux-Poissons: thickness: 3 cm / space in between 1-2: 74 cm
2. Petite-Veinette: thickness: 0.7 cm to 3 cm / space in between 2-3: 3 cm
3. Fillet: thickness: 0.7 cm / space in between 3-4: 9 cm
4. Grosse-Blanche: thickness: 6 cm / space in between 4-5: 30 cm
5. Gros Grès: thickness: 2.6 cm to 7.5 cm / space in between 5-6: 45 cm
6. Dressante: thickness: 2.6-7.4 cm / space in between 6-7: 45 cm
7. Jolie-Veinette: thickness: 1.5 cm to 3 cm / space in between 7-8: 30 cm
8. Petite-Blanche: thickness: 0.7-2 cm / space in between 8-9: 30 cm
9. Les deux Grosses-Latneuses: 1.5 cm / 1.5 cm hybrid / 1.5 cm / space in between 9-10: 150 cm
10. Nouvelle Veine: thickness: 7.5 cm
11. La Grise
12. La Verte
13. La Veine aux Clous



It must have been a huge tectonic violence to give the original horizontal layers this shape.

Brief description of the layers
Identifying the Coticule layers is very difficult, but we make an effort to make things a little more clear.
The story is intended to gain an overview.
The individual veins are discussed later.

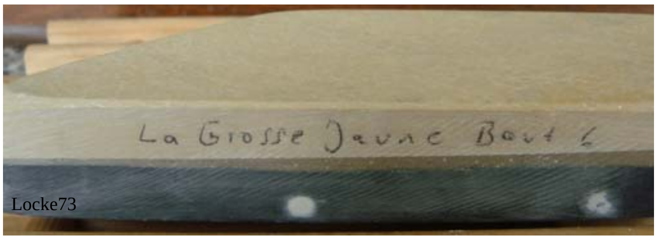
The veins 1 to 3 have been exhausted and vein 4 is becoming rare, vein 5 has become extremely rare.

"Ardennes Coticule" only can win those layers that are available in the quarry. The other layers are not accessible so that they are not available.



Bart

4. La Grosse Blanche
This is a light colored Coticule layer, which is colouring deep brown by prolonged exposure to (sun)light. Manganese black lines and points may be present. Sometimes brown needle-shaped spots, distributed over a part of the surface that are similar to pores (though the surface is non-porous).
The slurry has a characteristic soapy structure and the cutting speed is fast to moderate. The polishing rate with water is very slow, while the presence of the brown spots predict faster behavior with water. The polishing rate of the slurry is rapidly becoming less fast and must be changed regularly. Gives a very skin-friendly cut with water. Rare.



Locke73

5. La Grosse Jaune
(Probably named by Dumont La Gros Gres.)
The Coticule has a yellowish gray color discoloring ocher yellow when wet. It looks a bit grainy while it feels smooth. The surface is finer than that of La Grise (see there) and looks more like wood pores than wood fibres. With slurry this is one of the slower layers. With water the stones are slow with a "magnetic" suction similar to the 'hybrid' side of Les Latneuses.
The slurry has a consistency like a lubricant is added.
The La Grosse Jaune Coticules are among the easiest to obtain a perfect cut.



HB

6a. La Dressante au bleu
Always a combo with BBW. The dividing line is sharply defined and often curved. The Coticule has a coffee-with-cream color, a bit darker than the rest of La Dressante. Possible presence of manganese with black lines and dots. Possible presence of coarse red or orange lines.



The surface of the Coticule has no patterns, and bluish spots sometime can be present.
Velocity of the slurry is moderate, approximately in the middle of the spectrum. Becoming dull of the slurry is mediocre. The speed with water is slow (some discolouration of the water after a series of half-strokes).



6b. La Dressante top layer
This part of La Dressante is not connected to the "lower" BBW part and therefore is usually glued on shale.
The color can vary from white to pale-pink. Shades sometimes are present in a stone. Manganese lines and points are possible. Manganese hairlines seem to predict very fast performance with slurry. Red, orange and yellow lines are possible. Red lines indicate (relatively) high cutting speed with water. Has no surface pattern.
La Dressante top layer has a clear feedback: the slurry structure changes to almost freezing when using water.
The speed may vary from moderately slow (rare) to fast (very common) and sometimes very quick.



7. La Veinette
A very thin layer, always a combo with BBW unless the BBW is defective and it needs to be glued on slate. Creamy Coticule part, no surface pattern. Often manganese lines or points. BBW has short or long white lines on the side, parallel to the dividing line.

The abrasive action is very consistent throughout the vein. Moderately fast on slurry and (relatively) moderately slow with water. The water is becoming darker by grinding.
The slurry stays functional long making them easy to use.
Typical feedback, grainy feeling slurry which evolves into a light draw when using water.

8. La Petite Blanche
The second of the narrow layers, always bonded to BBW. Pale creamy color, no surface pattern. Characteristic blue





line at the side of the Coticule section.
Often purplish parts in the BBW near the transition line.
Manganese lines may be present.
Sharpening features are very consistent throughout the layer. Quick on slurry and (relatively) moderate with water.





The hybrid side of a Latneuses. The hybrid side is somewhat more slow and has a different, a bit of a glass-like feedback.

9. Les Latneuses
A double layer consisting of a "hybrid" part, sandwiched between two Coticule parts. Delivers combination stones "hybrid"-Coticule and Coticule glued to slate. The hybrid side helps to identify. The Coticule is coffee - with - cream in color. Manganese lines and spots are sometimes possible; sometimes there are also orange - brownish lines.
More pink colored Coticules also occur with lighter yellow lines and dots. These are remarkably quick with the use of water. One side of Les Latneuses has a set of blue hairlines that run lateral in the Coticule part.
This side is moderately fast on slurry. The other side has much less of this blue hairlines and is very fast on slurry. The polishing rate with water of the Latneuses is variable in the layer. The Coticule parts have a clear structure in their feedback. The hybrid side has a moderate speed on slurry and another feedback, which is often described as "magnetic" with the use of water only.





10. La Nouvelle Veine
Is a thicker layer which makes it possible to cut multiple slices of Coticule. Pale creamy color, often marbled with hazy blue spots. No real pattern as seen on La Grise, La Verte and La Grosse Jaune. Characteristic are a series of faint blue hairlines in the side of the Coticule part, parallel to the dividing (or glue) line.
The abrasive properties of the slurry range from slow to fast, depending on from which part of the layer of the stone comes. It turns out that the side adjacent to the BBW is the fast layer, while the stones bound to the opposite the BBW are slow.

La Nouvelle Veines with a gradual transition to BBW are fast. Those with a rapid transition are slower. Glued stones can be anything, but in general they are fast. With water, the La Nouvelle Veine Coticules are slow to very slow.
La Nouvelle Veines are fast with slurry, causing a fast becoming dull slurry and require a precise dilution to yield perfect results. This they have in common with La Grosse Blanche.





11. La Grise

The relatively thick layer makes it possible to cut multiple slices of Coticule with uniform characteristics over the entire layer. The color usually is warm (yellowish) gray, but cool (bluish) gray also occurs. Presence of a grainy-looking pattern (although it feels completely smooth), which recalls a wood grain. Natural combination stones usually have a gradual transition to the BBW. Many La Grises are glued on a slate as a carrier. Speed on slurry is moderate, sometimes a little faster, but usually something slowish. Speed with water is (relative) slow.
La Grise Coticules have a glassy appearance and with water only a mild slurry wear.



12. La Verte

Also consists of a thick layer which makes it possible to cut multiple slices of Coticule with (usually) consistent properties. The stone has a gray-green tint. Natural combination stones have a smooth transition to the blue part of their BBW.
Presence of a grainy-looking pattern (although completely smooth to the touch), which recalls a wood grain.
They are similar to La Grise, although La Verte Coticules generally are difficult, both in appearance and feel. Speed on slurry is moderately slow. They are faster in water than La Grise, making them ideally suited to optimize some neglected cuts.



13. La Veine aux Clous

Until now only two pieces are tested by Bart Thorfs. These were quite soft, slightly porous with an open structure that gave a granular feedback. They are very slow with much auto slurry which is released during the honig process. Bevel correction options were limited. Finishing the cut when under a running the tap (to avoid auto slurry) was on par with what would be expected of a whetstone. This layer is - to my knowledge - not exploited commercially and is described in this story to make the layers complete.

Coticule layers Regné

We would love to know what stones will come from the mine at Regné. There is something known about what layers are present in the mine. For example: La Grise Gros and Double Fin, Le Peta Gros and Fin Double, L'Allemande, Gres, La Pareu, La Dressante, La Dados and Le Petit Tenne. The later in particular seems to have an especially good quality. "La Lorraine" is sandwiched between the Coticule layer named "Les Petas" and the Coticule layer called "L'Allemande".
Reaching the layers is difficult. First a vertical shaft should be realized from which more or less horizontal corridors (galleries) will be made following the layers.
Bart Thorfs has tested some of the rare samples (La Grise, Vault n° 37 -, La Dressante and Vault n° 2). They seemed strikingly similar to their respective cousins of the Ol'Preu quarry.



Coticule grinding principle's

Introduction
In my stories about grinding and honing I tell about the stone and its features. Usually from a historical perspective. The grinding itself does not belong in the series which is why there are no manuals for grinding. Still, I want to make an exception for Coticule and say something about it.

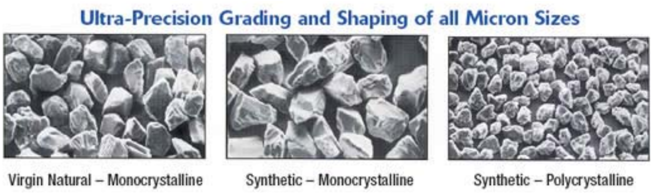
There are a lot of misunderstandings about sharpening with Coticule. To gain some insight I will discuss here the principles of grinding and honing with Coticule. As stated: the technical principles. Previously, early 50s of the 20th century in technical school, we got dictated the technical principles and we wrote them down in a dictation exercise book.
If you are able to understand the principles of grinding and honing you are also able to achieve a perfect result.

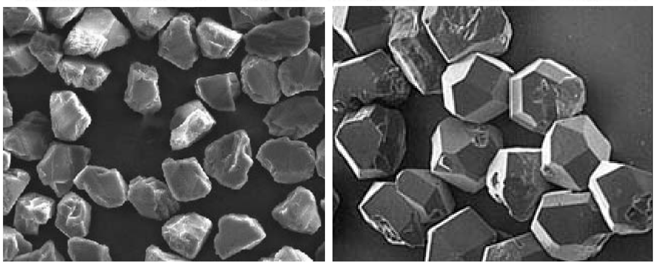
Content
Grain shape of industrial abrasive materials
Grain shape of natural abrasives
The difference between sanding, grinding and lapping
Determination of particle size
Common errors

Grain shape of industrial abrasive materials

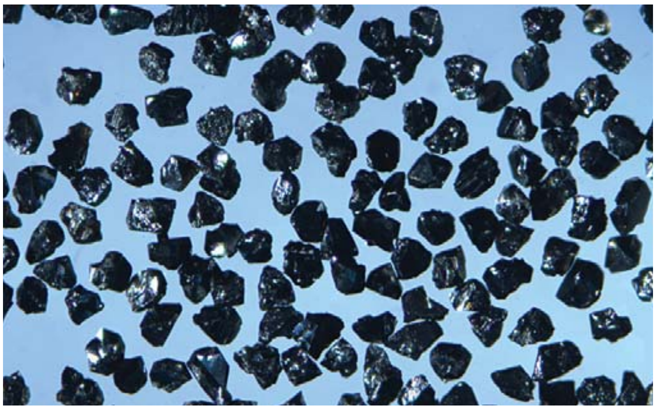

Silicium Carbide

In order to use large crystals as a suitable abrasive material it must be crushed and sieved to size. When breaking, depending on the material, sharp angled grains arise.
In diamond it looks like this:

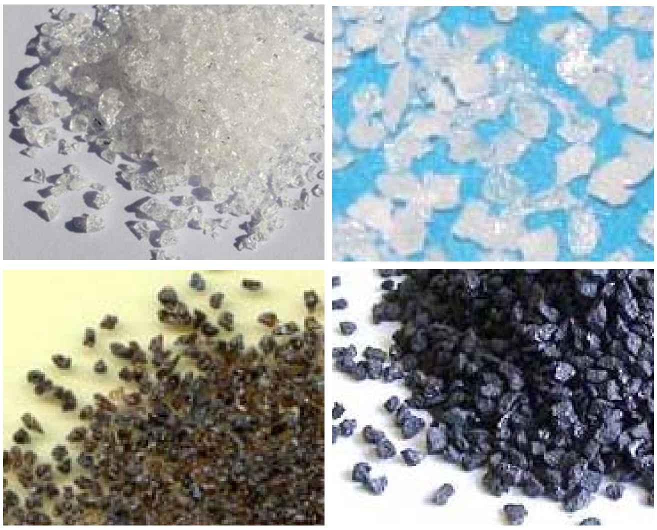




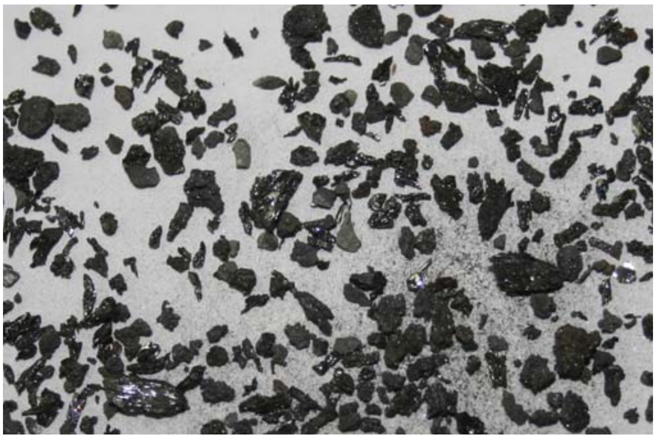
Some have a preference for Cubic Boron Nitrite:



Alumina is as follows:



Silicon Carbide:



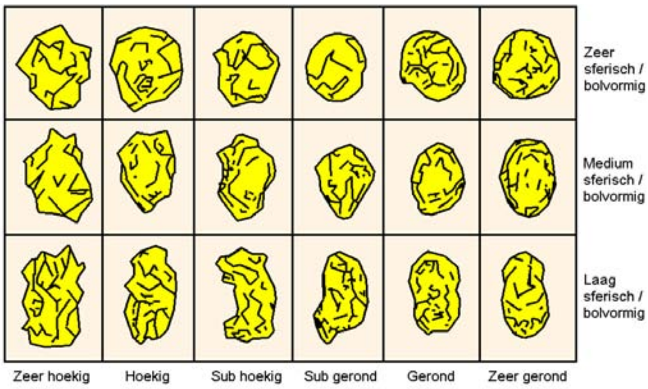
When grinding with these grains deep V-shaped grooves in your knife or chisel arise. The cut never becomes smooth and continues to have a zigzag shape.
After shaving a distressing feeling arises and you feel somewhat unhappy.
The granules are suitable for many applications such as in working metal. In woodworking you will never achieve a mirror smooth cut in the crosscut wood as it always has a zigzag shape. Even when sanding it will not become perfect because the pores of the wood are rubbed shut.

Grain shape of natural abrasives

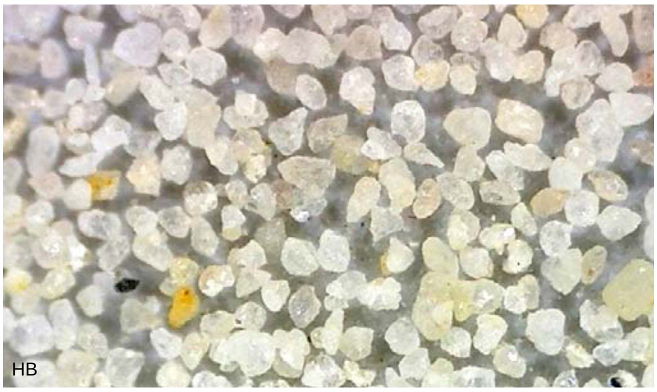
Natural abrasive grains have a much rounder shape, creating a wavy cut.



During generations a tool was grinded on a the rotary sandstone with water. Depending on the pressure exerted on the blade you can get with the use of a lot of pressure a rough impression and with very little pressure an almost polished edge. All that with only one stone! This is due to the shape of the sandstone grains:



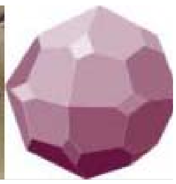
(Bron: STRI: Sands for Turf Construction and Maintenance)



In Coticule is it even nicer. During the grinding a slurry is created in which are thousands of tiny crystals of garnet (spessartine). These have the shape of a dodecahedron (12 angular). With this garnet crystals you can hone in 2 ways.



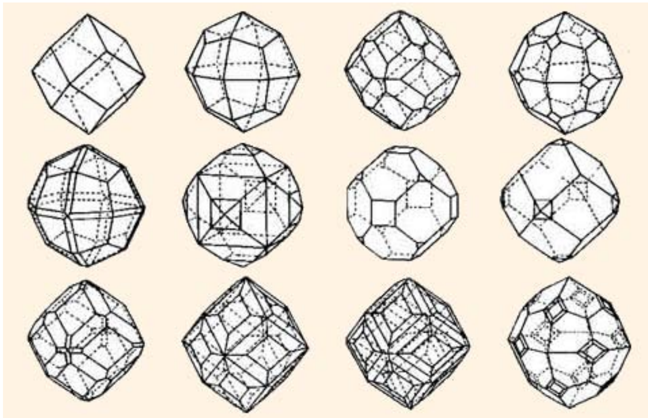






Spessartine crystals

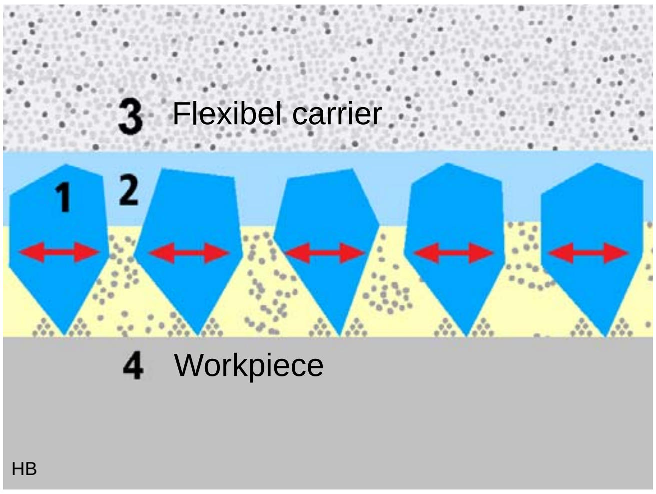
* With slurry a process called "lapping" arises in which the crystals roll between the carrier and the workpiece.
Every time a corner passes the workpiece a tiny part from the workpiece (blade) will be removed. The result is a mat surface that looks like it is sand-blasted.
* With the use of water only and very little pressure an abrasive effect is created that produces a mirrorlike smooth surface.
The fineness can go up to 16,000! The result depends on the proficiency of the grinder.



Possible forms of spessartine crystals.

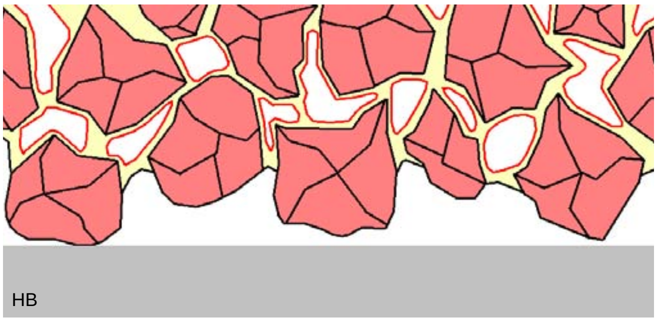
The difference between sanding, grinding and lapping

Caution! There is a fundamental difference.

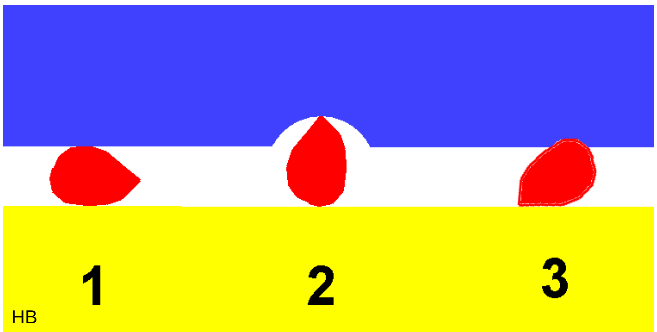


When sanding, the abrasive grains (1) are applied to a flexible carrier (3) with adhesive (2).
As a result, the carrier (sandpaper) can move and adapt to the surface of the workpiece.

All abrasive grains touch the workpiece and when pressure is applied during movement will scratch the workpiece.
With a little luck all scratches are equally deep.



When "grinding" only a few grains will be touching the workpiece. The depth depends on the pressure exerted and the evenness of the grinding wheel. The abrasive grains are held at their place by the matrix (yellow).



When "Lapping" the situation is quite different.
The workpiece in this situation is blue and the carrier is yellow. Between the workpiece and the carrier, the loose abrasive grains are in a liquid.
The liquid may be water or oil.



With Coticule the liquid is water. The workpiece is moved back and forth so that the abrasive grains (garnets) start to roll and remove a small piece of material with every corner of the dodecahedron.
When we work using Coticule with slurry, we basically are "lapping" and not grinding.
When using Cotucule with (running) water than we are "grinding". See also Part 1 page 12.

Determination of particle size
Determination of the grain size in Coticule is not possible. We can look at the surface though, to see what we can achieve with a particular operation.
We can compare the resulting surface with a standard. This allows us to get an idea what the ground surface is similar to.

The following results have been obtained with the same stone by varying the thickness of the slurry and the applied pressure. The range is from 800 grit to 16,000 grit!

For best results, the Coticule whetstones have to be completely flat. Otherwise, it will take too long to reach grit 16,000. The BBW and Coticule should have sloping sides.

Exercised pressure
* Determines largely the fineness of grinding.
* Low pressure provides a surface with a fine texture.
* High pressure gives a rough surface with a coarse grained structure.

Cutting speed
* Heavy, almost paste-like slurry: 1000 - 2000 grit.
* Medium, milky slurry: 4000 - 6000 grit.
* Thin, misty slurry: 8000-12000 grit.
* Water: up to 16,000 grit.

Keenness
* Thick almost paste-like slurry: 600 grit, although less aggressive due to the lack of a saw-tooth pattern.
* Medium, milky slurry: 2000 grit, although less aggressive due to the lack of a saw-tooth pattern.
* Thin, misty slurry: 6000-8000 grit with low pressure.
* Water: 10000-15000 grit with a very, very low pressure.

Smoothness level
* Slurry: the surface looks like sandblasted when viewed with a magnifying glass.
* Very thin slurry: can be used in order to make the cut smoother. The cut is very kind to sensitive skin. There is needed little pressure.
* Water: will add more smoothness to the cut.
It will start to polish the cut without loosing the eagerness. The fineness increases to 15000 grit. Very, very little pressure is required.

Common errors

Artificial Stone compared with natural stones
The grains of the artificial stones are much more aggressive than natural stone.
Artificial stones will decrease much more material in the same time due to the shape of the grains.
The cutting edge is serrated with artificial stones.
In natural stone the cut is more wavy.
In the evaluation of natural stone, it is therefore an error to compare them with the artificial stones. It's like comparing apples with pears!

Difference in hardness
The grains of artificial stones are much harder than those of natural stones.
If a stone is flattened with an artificial stone than the artificial stone cuts off the tops of the abrasive grains making the natural stone blut and decreasing the performance.
Than the stone must first be worked open so it can grind well again.



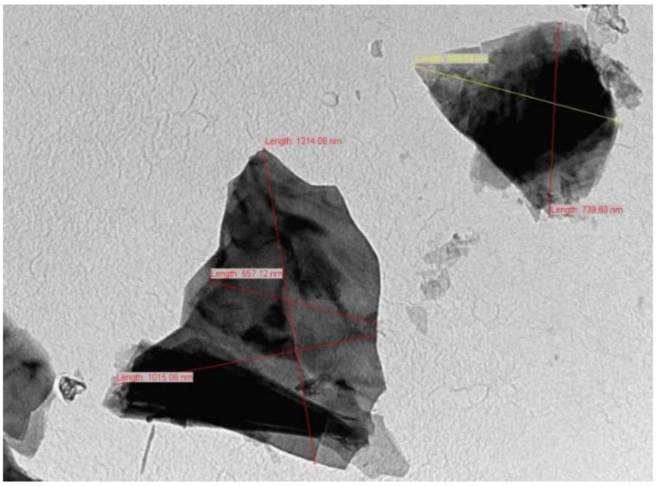
The tops of the grains are flattened.

We can do this with a rubbing stone or milk-stone of the same material as the natural stone.

Making slurry with a soft slurry stone

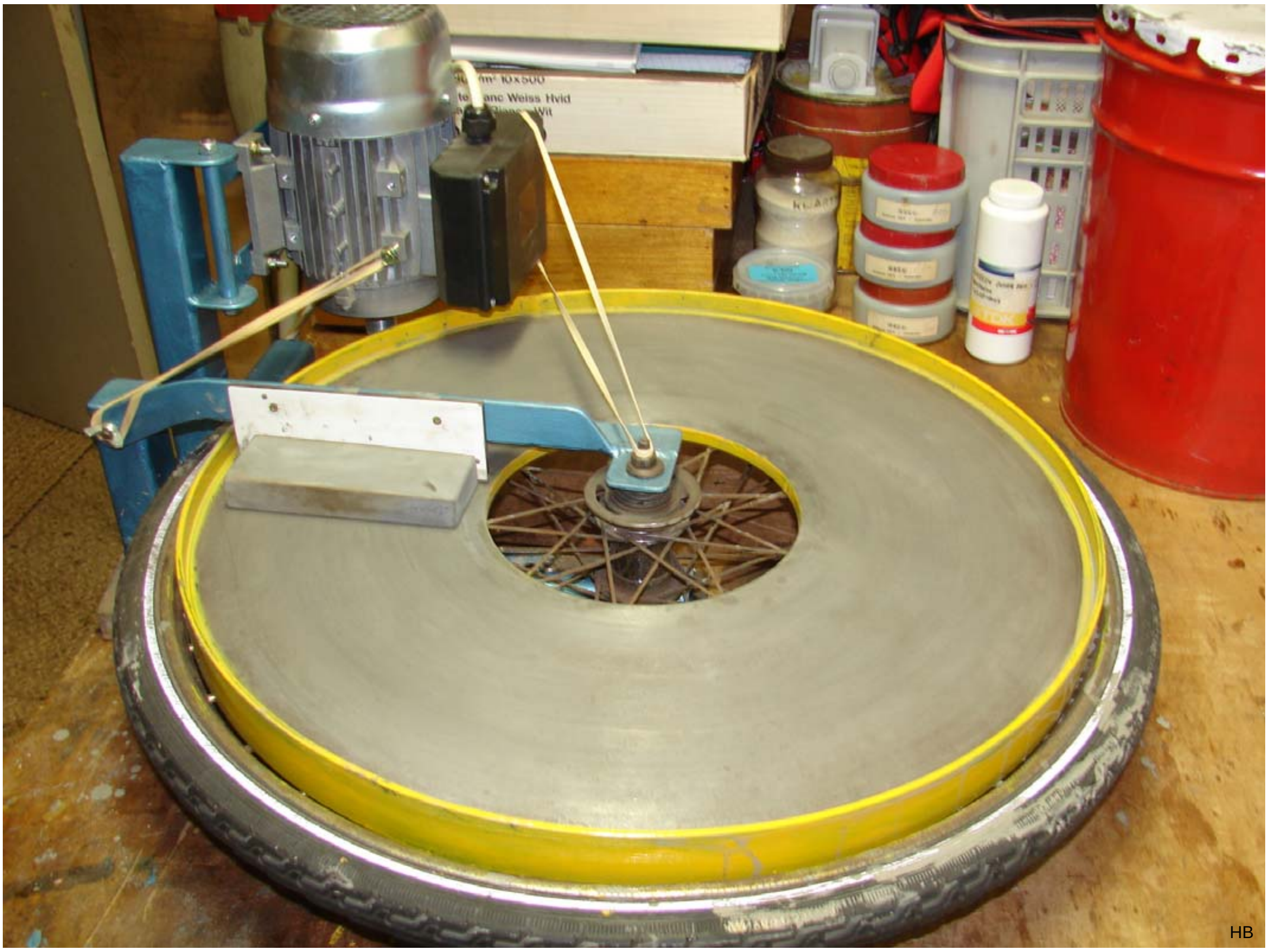
If slurry is made with a gentle rub- or milk-stone, then the slurry concists of the material of the rubbing stone. This is not so bad while later in the process the slurry is replaced by the slurry of the whetstone.
With very hard stone this is problematic. The whetstone will not be flattened with a soft rubbing stone.
The reverse is possible. With a harder milk-stone there is a high risk of scratching the whetstone.
The hardness of the binding can be measured with a sclerometer (See Section 2 pages 34-35). Hardness of Coticules can range from 800 to 3000 grams.

Making slurry with a diamond stone.



When I read this in the forums, shivers run down my spine because the diamond is much harder than the garnets.
The result is that thin slices of garnets are shaved off.
When you look at the slurry under the microscope and the effects on your expensive razor, than you get frightened.
The result is a distressed skin and there you have it ...

With this self-built device silicon carbide is sprinkled on the steel plate that is turning with 60 rpm. The grinding method is called "lapping", and to make the surface of the grinding stone flat, is also widely referred to as "lapping". Use wet only!



4. La Grosse Blanche



Bart

Features
The stone is soft.
The surface is very uniform and creamy.
The color is originally very light yellow / white.
White slurry that quickly turns black.
Discolouring under the influence of the sun.
Manganese black lines and dots may be present.
Sometimes brown needle-like dots, distributed over a part of the surface looking like pores (although the surface is non-porous).
Natural combination stones are rare.

Characteristic features
The slurry has a characteristic soapy texture.
The speed on slurry is fast to moderate.
The presence of brown dots predicts a rapid grinding behavior with water.
Auto slurry with water.
The slurry gets dull quickly but gives a very smooth cut.



Whitebar

Before the discoloration.



Whitebar

Slightly discolored.

Definition
It is an excellent stone for all kinds of knives, chisels and razors. The grinding gives a very fine strange grained feeling, even with plain water. It polishes a good razor well. The grinding seems to go with and without slurry equaly quick.
The stone gives a characteristic soapy feeling and very mild to a razor. The stones look great when they are discolored. It is the only layer of the Ol'Preu quarry with a photosensitive effect.
The cause of the discoloration is not known.



Bart

Discolored very much.



JB


HB


Brazilian slate
HB


HB


Wet
HB


HB


Slurry
HB


Dry
HB


Micro 20x
HB

5. La Grosse Jaune

Thanks to Stefan Wild.



Bart



Locke73



Locke73

Features
"La Grosse Jaune" seems to deliver grainy whetstones.
Yellowish gray color.
The stone is yellow ocher when wet.
Looks a bit grainy, while it feels smooth.
Surface is finer than that of La Grise.
Surface looks more like wood pores than wood fibres.
When sharpening the typical grinding sound of steel arises.

Characteristic features
With slurry this is one of the slower layers.
With slurry it grinds fine and with an average speed.
The slurry has a consistency like a lubricant had been added.
With the slurry it becomes sharp enough to cut armhair.
With water the stones are slow, with a "magnetic" suction similar to the 'hybrid' side of Les Latneuses.
With water the grinding feeling fades to 0 with clear water.
What remains is the uniform grinding to a perfect cut.
With water the cut is excellent and very smooth.

Definition
La Grosse Jaune is probably called La Gros Gres by Dumont. The La Grosse Jaune Coticules are among the easiest stones to obtain a perfect cut. These stones are a real pleasure and invite to perform perfectly balanced grinding strokes. It is like the razor pilots itself, you only have to put on a little pressure.
The finishing properties are excellent.









Thick slurry

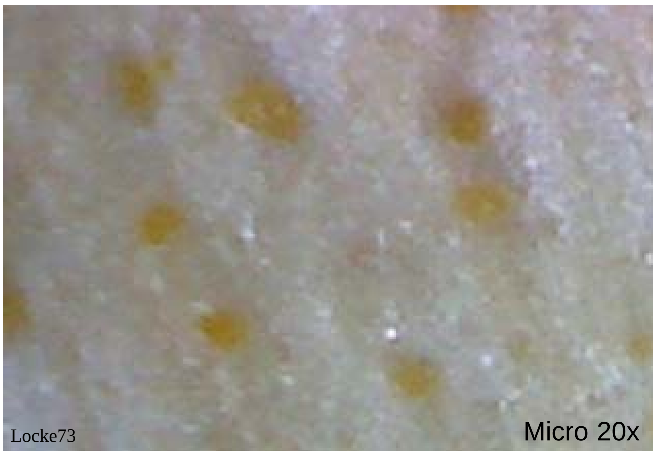




Thin slurry



Wet



Micro 20x

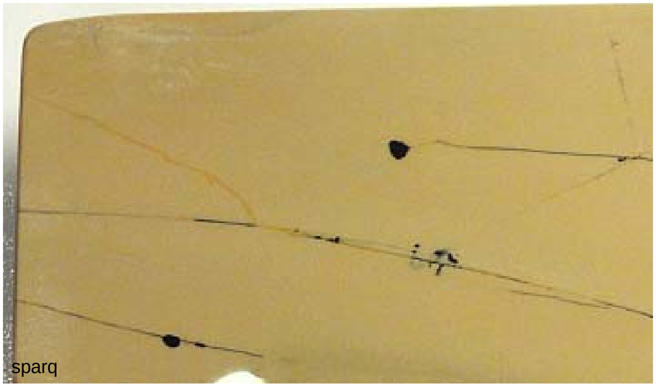
6a. La Dressante au bleu

Features
Always a combo with BBW.
The dividing line is sharply defined and often curved.
The yellowish appearance with red spots is typical for some La Dressante stones.
The Coticule has a coffee-with-cream color, a bit darker than the rest of La Dressante.
Possible presence of manganese with black lines and dots.
Possible presence of coarse red or orange lines.
The surface of the Coticule has no patterns, and there sometimes can be bluish spots present.

Characteristic features
La Dressante au Bleu is a coticule with a moderate cutting speed.
Typical feedback in very fine grinding.
Velocity of the slurry is moderate, approximately in the middle of the spectrum.
Getting dull of the slurry is mediocre.
The speed with water is slow (some discolouration of the water after a series of half-strokes).

Definition
La Dressante au Bleu resembles a mix of La Nouvelle Vein and La Grise. La Dressante au Bleu is a combination stone with a medium hardness (half soft / half hard) and grinds a little slower than La Dressante. In the surface of the stone yellow veins are clearly visible. The thickness of the Coticule layer goes up to 15 mm, and mainly rectangular stones are produced from this layer. It is an excellent stone for all kinds of knives, chisels and razors.

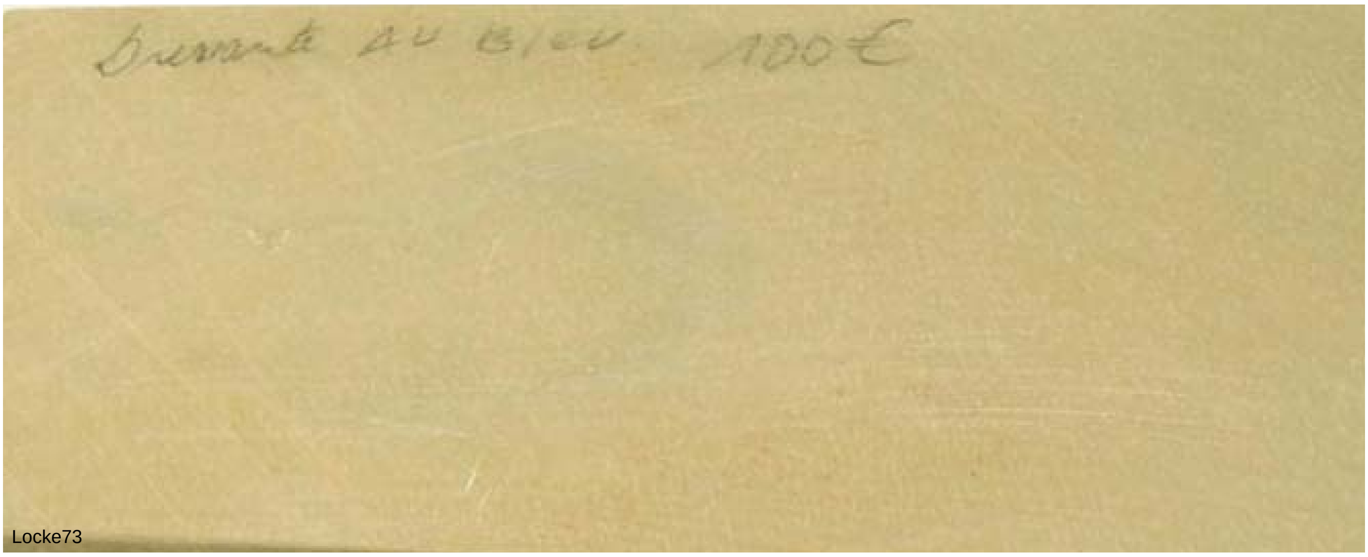


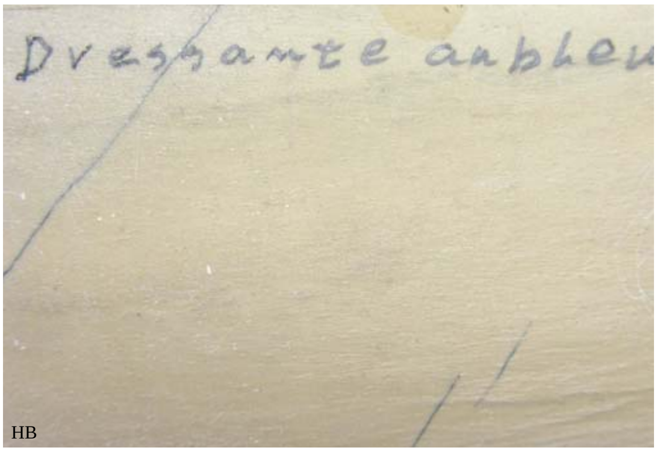


Red lines and dots always refer to "La Dressante".











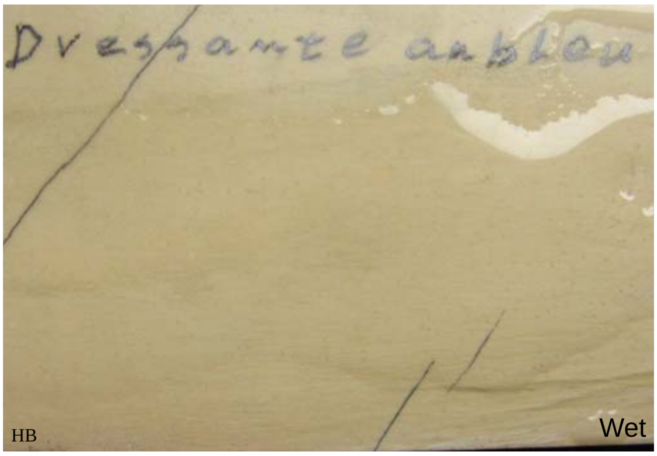
Rouge du Salm / Lorraine Dry



Rouge du Salm / Lorraine



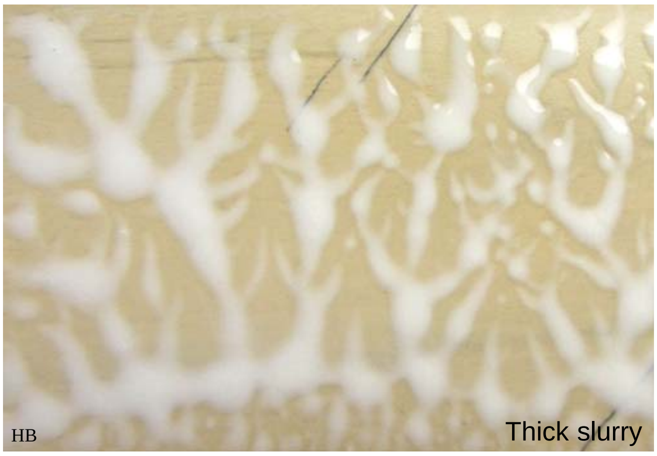
Rouge du Salm / Lorraine



Wet



Rouge du Salm / Lorraine Wet



Thick slurry



Rouge du Salm / Lorraine Slurry



Thin slurry



Dressante au Bleu Micro 20x

6b. La Dressante Upper Layer

Features
This part of La Dressante is not connected to the "lower" BBW part and is therefore, usually glued on shale.
The layer is the most variable of all Coticule layers.
The color can vary from light yellow-white to pale-pink.
Sometimes many shades present in one stone.
Manganese lines and dots possible.
Red, orange and yellow lines are possible.
Red lines indicate (relatively) high cutting speed with water.
Manganese hairlines predict fast performance with slurry.
Has no surface pattern.





Characteristic features
La Dressante top layer has a clear feedback: the slurry structure changes to almost freezing when using water.
The speed may vary from moderately slow (rare) to fast (very common) and sometimes very quick.
The grinding paste can both be milky and creamy yellow.
Noisy during grinding, also with water.
Slurry is becoming dull slowly.
Grinding Speed with water slow.



Definition
Comes from a somewhat thicker layer. Rectangular stones are rare. It is an excellent stone for all kinds of knives, chisels and razors. The cutting speed varies a lot with water. De La Dressantes clearly have the "finest" granularity, Les Latneuses the grossest and La Veinette somewhere in the middle.







Dressante upperlayer

Rouge du Salm / Loraine



Macro



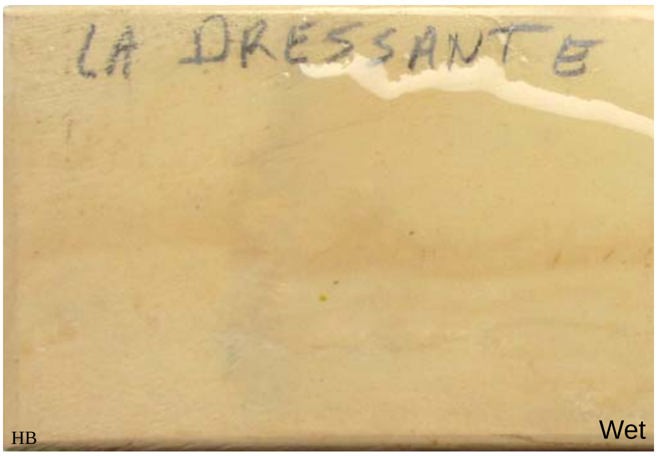
Thick slurry



Rouge du Salm / Loraine



Thin slurry



Wet



Dressante upperlayer Micro 20x

7. La Veinette

Features
A very thin layer, always bound to BBW.
Creamy Coticule part, no surface pattern.
Often manganese lines or dots.
Side lines show lines of yellow in the BBW and blue lines in the yellow.
Recognizable by a thin yellow line visible in the BBW layer and this in a few mm from the Coticule.
The white lines in the blue part are typical of the La Veinette layer.
There sometimes are coarse holographic diagonal lines on the surface with slight orange tones.
La Veinette is very uniform in color.
Sometimes blue spots on the top of the Coticule.
The hybrid La Veinettes look something different and the holographic pattern then is lacking.

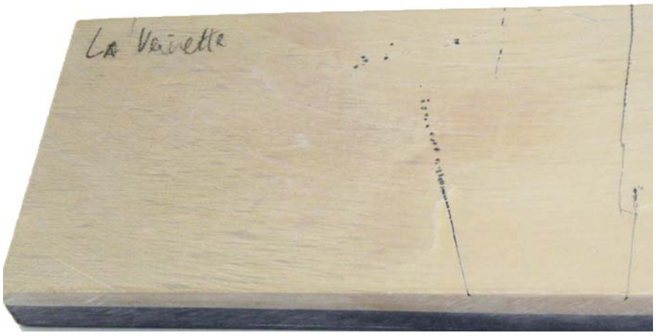
Characteristic features
The abrasive properties are very consistent throughout the layer.
Is moderately fast on slurry.
Is relatively moderate slow with water.
The slurry is not soon dull so the stone is easy to use.
Typical feedback with a grainy feeling slurry which evolves into a light pull with water.

Definition
La Veinette is the simplest layer to obtain a perfect cut.
If the BBW is defective, it gets glued on a slate.
La Veinette is eminently the best layer of the Ol'Preu quarry. The stone is very soft and grinds simultaneously extremely fast and fine! The slurry has a creamy yellow color and is mainly a combination stone. Do not use thick slurry but stay with a milky. Dilute the slurry occasionally with a finger dipped in water. This works fine. La Veinette is the best stone for razors and blades.

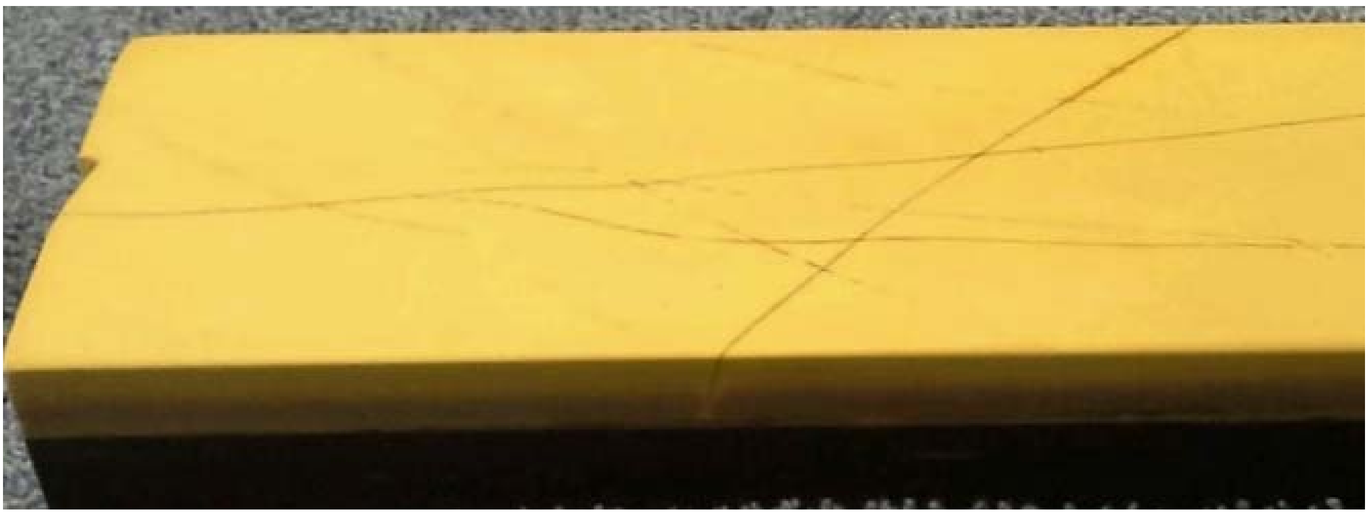
















Rouge du Salm / Loraine



Macro Dry



Rouge du Salm / Loraine



Wet



slurry Rouge du Salm / Loraine



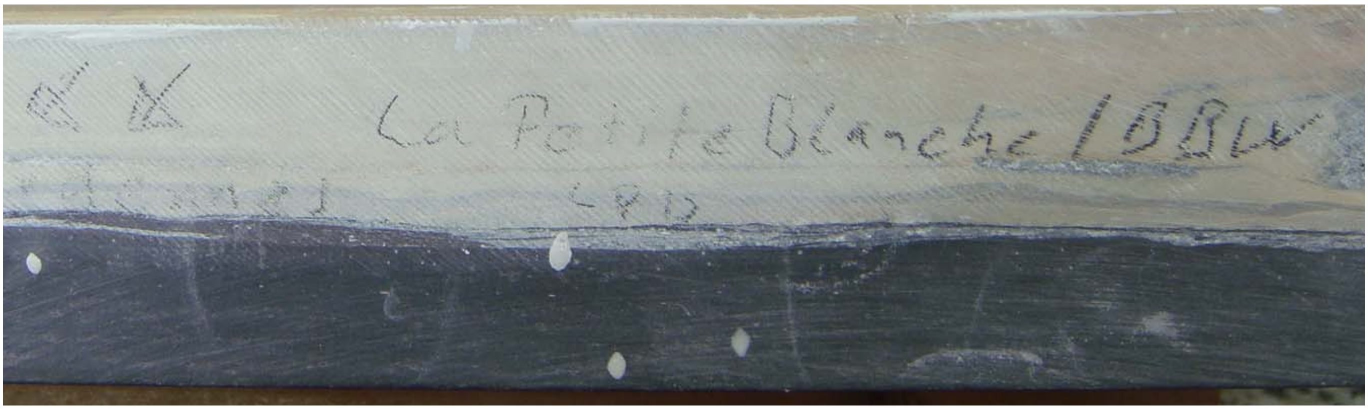
Slurry



La Veinette Micro 20x

08. La Petite Blanche





Features
Pale creamy color.
No surface pattern.
Characteristic blue line at the side of the Coticule section.
Often purplish parts in BBW near the transition line.
Manganese lines may be present.
The BBW often shows gradual transition from blue to a purplish hue closer to the coticule layer.

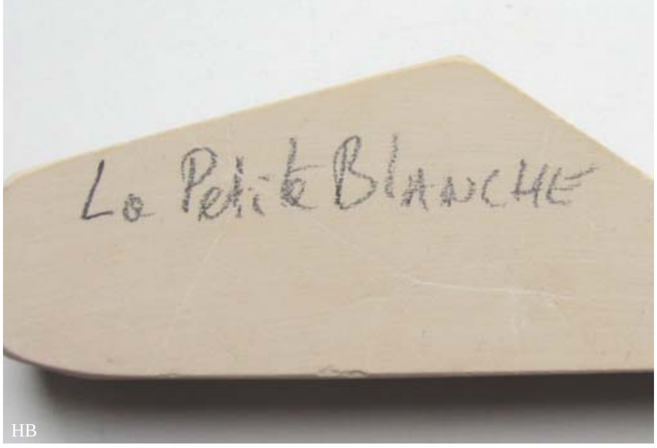
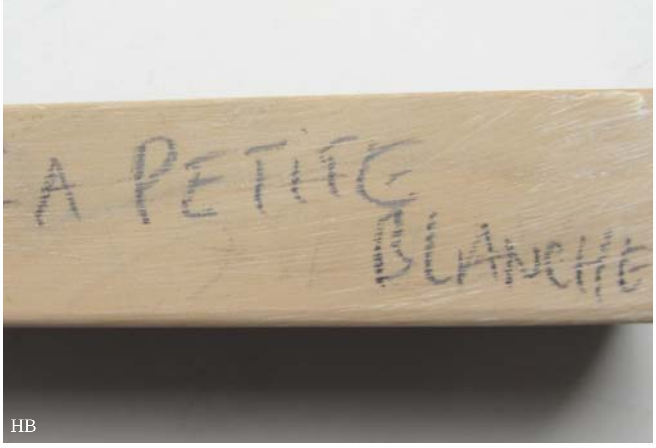






Characteristic features
La Petite Blanche is usually faster than a La Dressante.
The abrasive properties are very consistent throughout the layer.
Quick on slurry and (relatively) moderate with water.

Definition
It is one of the narrow layers and therefore always a natural combo with BBW. La Petite Blanche is a harder but very fast stone and gives a milky white grinding paste. The stone is usually homogeneously colored and occurs mainly as a natural combination stone. The thickness of the Coticule layer ranges from 3 to 6 mm. Thicker stones are rare. Recognizable by a thin gray Chlorite / Quartz layer in the transition between the Coticule and BBW.


La Petite BLANCHE
HB

HB

HB
Rouge du Salm / Loraine

HB
Rouge du Salm / Loraine

HB
Wet

HB
Wet

HB
Slurry

HB
Slurry

HB
Rouge du Salm / Loraine

HB
La Petite Blanche 20x

09. Les Latneuses

Features
Les Latneuses is a very soft stone.
Coticule has a coffee-with-cream color.
Sometimes manganese lines and dots is possible.
Sometimes orange-brown lines.
There are also pink colored Coticules with lighter yellow lines and spots.
Has a creamy yellow polishing paste.
Usually a combination stone with a hybrid layer.
There are several possible combinations, like Coticule with hybrid and Coticule glued to slate.
The hybrid layer helps in identification.

Characteristic features
Multicoloured stones are fast with water.
There are sometimes blue hair lines that run parallel to the Coticule layer, this layer is fast with slurry.
The other side has much less of this blue hairlines and is very fast with slurry.
The polishing rate with water of Les Latneuses varies in the layer.
Coticule batches have in their feedback clearly a structure aspect.
The hybrid side has a moderate speed with slurry and another side has a feedback that is commonly described to as "magnetic" when used with water.

Definition
The Les Latneuses vein consists of three different layers Coticule. One layer of the vein is a very fast yellow Coticule hone which is normally associated with the vein. Another layer of the vein is another yellow Coticule layer that is fast enough, but slower than the first yellow Coticule layer. Between these two layers yellow lies the hybrid layer, which looks like marble.
The hybrid layer was so named because it was believed that it was a mixture of BBW and yellow Coticule.
But the hybrid layer is a mixture of chlorite and quartz.
The quartz particles are small, <1 micron, making this layer suitable for very fine grinding of, amoung others, razors.

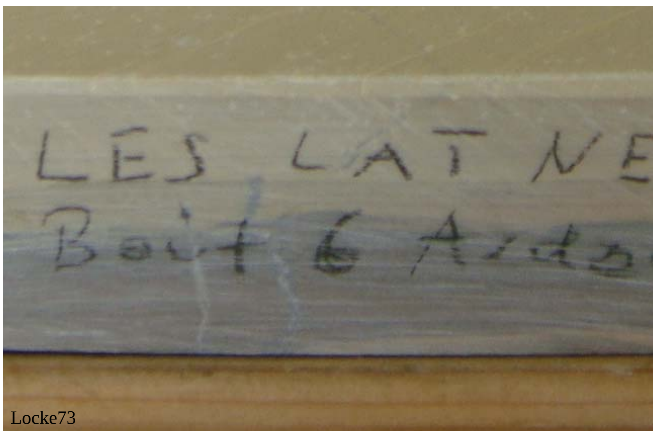

altshaver


altshaver
Hybrid side


altshaver


altshaver


altshaver



Locke73



Les Latneuses dry



Hybride side dry





Les Latneuses makro



Hybrid side wet



Les Latneuses makro



Hybrid side Slurry



Slurry



Les Latneuses 20x

10. La Nouvelle Veine





Features
Pale creamy color.
Often marbled with hazy blue spots.
No real patterns just as be seen at La Grise, La Verte and La Grosse Jaune.
Set of faint blue lines running down the side of the Coticule part, parallel to the dividing (or glue) line.

Characteristic features
The abrasive properties of the slurry vary from slow to fast, depending on the place in the layer.
In the adjacent BBW layer they grind the fastest.
La Nouvelle Veines with a gradual transition to BBW are fast.
The stones with a rapid transition are grinding slow.
The glued stones are often in between but are generally fast.
With water, the La Nouvelle Veine Coticules are slow to very slow.
They are fast with slurry, but the slurry dulls quickly and it requires precise dilution to obtain perfect results. This they have in common with the La Grosse Blanche.
With a little effort of the user the stones provide a perfect smooth cut.
The stone is recommended for people with sensitive skin.

Definition
It is a somewhat thicker layer, which makes it possible to cut multiple slices Coticule. (2 or 3).
Therefore, they can occur in two types, namely glued and as a natural combo.
Because of the hardness of the stone (scratch resistance was 2500 grams), it requires a very good handling of the knive with water to actually hone the cut and not only to polish the side of the cut.
It helps to play with the exerted pressure.
More pressure will improve the reduction and it does not necessarily deteriorate the cut. Another way to hone successfully is to operate with a very thin slurry until the cut passes the HHT (Hanging Hair Test), and then work a limited amount of stroke with water only. Working with water can also be left out. Grinding in accordance with the Unicot method also works well.
The narrow bevel gives a much better honed cut.
See http://www.coticule.be/unicot.html




La Nouvelle veine

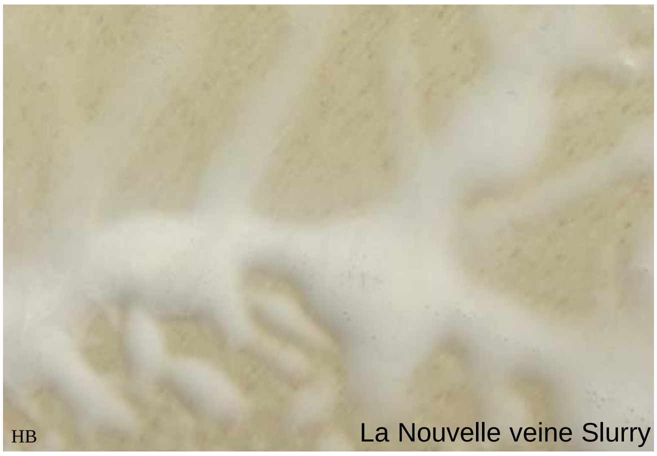

La Nouvelle veine
Rouge du Salm / Loraine



La Nouvelle veine Wet



Nat Rouge du Salm / Loraine



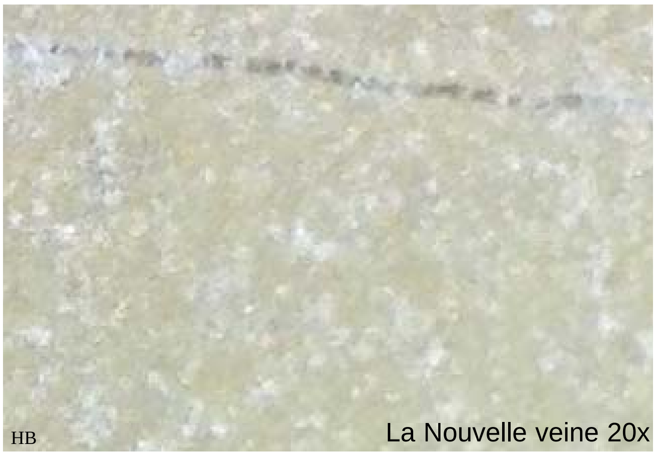
La Nouvelle veine Slurry



Slurry Rouge du Salm / Loraine



Rouge du Salm / Loraine

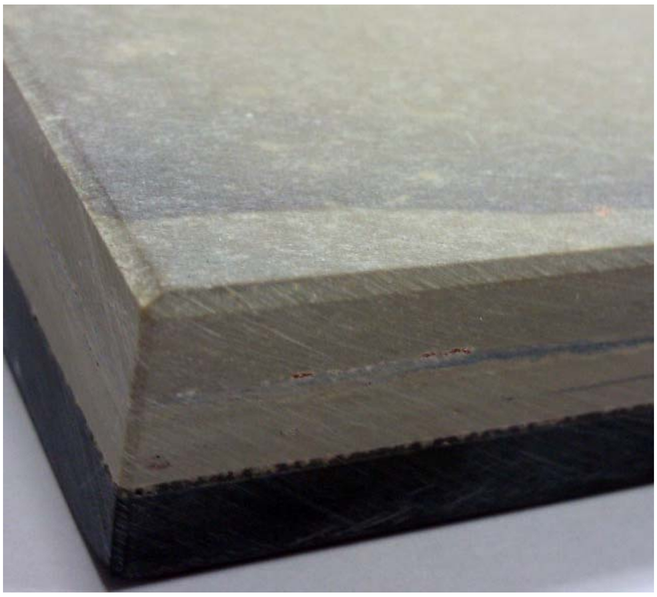


La Nouvelle veine 20x

11. La Grise

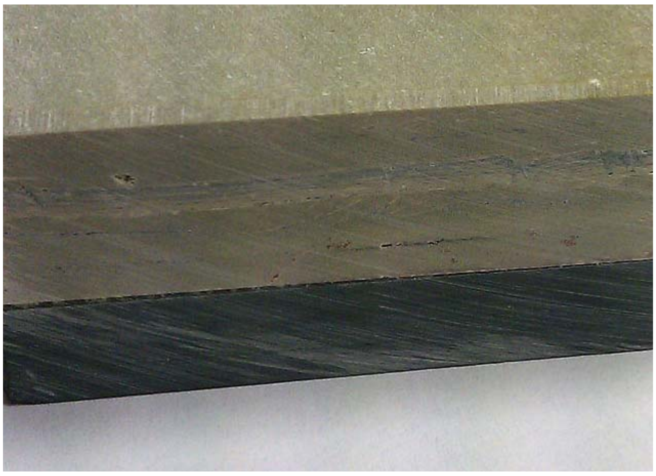


Features
Color usually warm (yellowish) gray, but cool (bluish) gray also occurs.
Has a grainy-looking pattern (although it feels completely smooth), reminiscent of wood grain.
Natural combination stones usually have a gradual transition to the BBW.
Many recent La Grises are glued to slate.



Characteristic features
La Grise hones with constant properties over the entire layer.
Speed with slurry is moderate, sometimes a little faster, but usually something on the slow side.
Speed with water is (relative) slow.

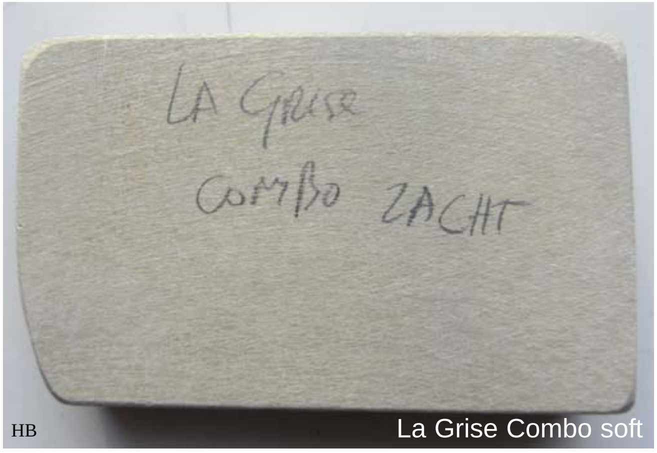
Definition
Thicker layer which makes it possible to cut several slices of Coticule with a constant quality. La Grise Coticules have a glassy appearance worked with water only and the slurry is not quickly dull.






La Grise Combo hard


La Grise Combo hard
Rouge du Salm / Loraine



La Grise Combo soft


Rouge du Salm / Loraine


La Grise Wet


Slurry Rouge du Salm / Loraine


La Grise Slurry


La Grise 20x

12. La Verte



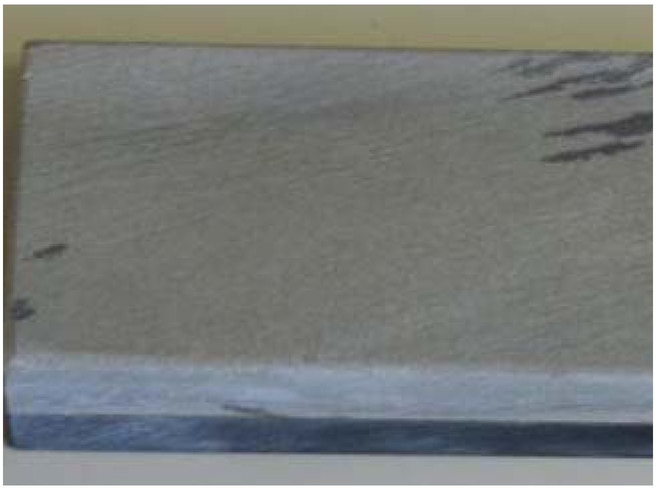


Features
Color is an unusual green-gray hue.
Often brown spots (probably a form of manganese).
Natural combination stones have a smooth transition to the blue part of their BBW.
Presence of a grainy-looking pattern (although it feels completely smooth) that looks like a wood grain.

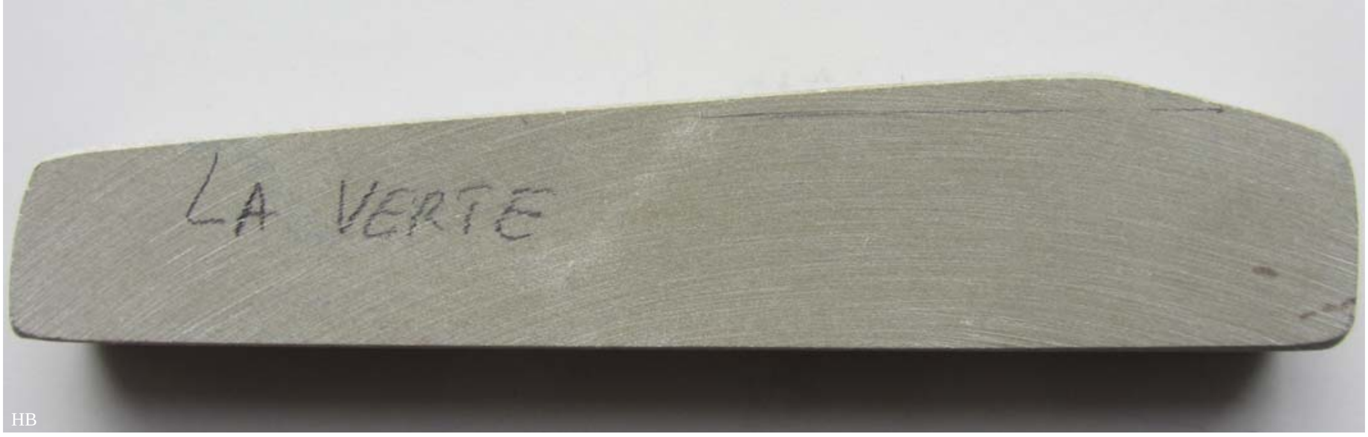
Characteristic features
They are in appearance and feel similar to the La Grise.
La Verte Coticules are generally harder than La Grise.
No auto slurry.
The speed with slurry is moderately slow.
After the slurry a razor blade is suitable to shave a beard.
They are faster with water than the La Grise making them suitable to renovate an edge.
Glass-like sensation, almost no pull, with a slightly grainy feel.
Slow gray discoloration of the slurry.
These Coticules are easy to handle, not the fastest, but always ready to give a sharp edge to a razor.
The near absence of "slurry getting dull" makes them easy going.

Definition
Thicker layer which makes it possible to cut multiple slices of Coticule with (usually) consistent properties. All La Vertes are roughly comparable. They are fairly hard stones, approximately at the end of the spectrum. The slurry is not getting dull fast which means that the cut can reach almost optimum sharpness with a light slurry.

They are really stones to play with the density of the slurry, for example up to two times back and forth with a slurry stone.








Rouge du Salm / Loraine

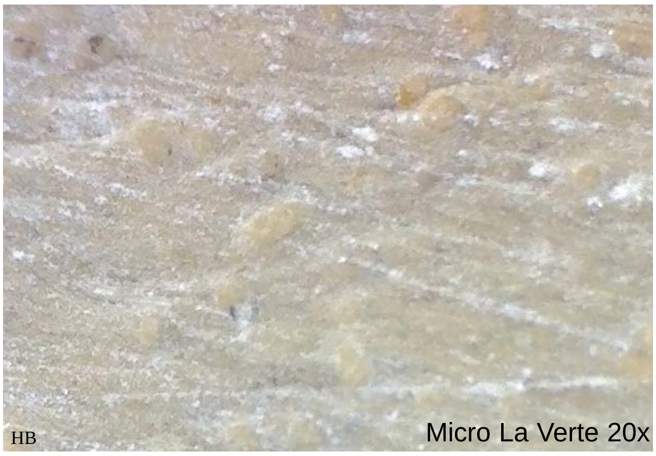

Macro La Verte


Rouge du Salm / Loraine


La Verte Wet


Slurry Rouge du Salm / Loraine


Slurry La Verte


Micro La Verte 20x

13 La Veine aux Clous



Features
Quite soft.
Can be scratched with a fingernail.
Lightly porous with open structure.
Grainy feedback.
BBW-side has dark spots, which are typical for this layer.
BBW slow, but works well.

Characteristic features
They feel coarser due to the structure of the surface.
They are very slow, slurry almost unusable.
Too soft for most steels.
Much auto slurry which is released during the honing process.
Most auto slurry of all coticules.
Bevel adjustment options are limited.
The finish under running water is the best of all Coticules.
BBW slow, but works well.

Definition
"La Veine aux Clous" can be translated as "the layer with the Nails". This layer has not been commercially exploited, and is described in order to make the layers complete.
The test whetstones are made after a part of the rear wall of the quarry came down.
They indeed look a bit like the La Grise, with wood grain pattern and all, but the color is more neutral gray than La Grise, which usually has a yellowish or bluish tint.
The pattern is also finer. Finishing the cut under running water (to prevent the auto slurry), is in line with what can be expected of a whetstone.
La Veine aux clous stones can set a bevel.

The finishing properties are excellent. A well sharpened razor which has become dull, is very easy to get in perfect condition again.
The properties of Veine aux Clous may be different in various parts of the layer.
Only if you love Coticules it's fun to play with. But if you are looking for a first Coticule to hone your razor it is not recommended to buy La Veine Aux Clous.
The stones are not sold for use with razors.

Relationship fineness and density

In S&W Part 3 on page 117 you will find the next table:

Material	Country	Colour	Number	Hardness gram min.	Hardness gram max.	g/cm^3 min.	g/cm^3 max.
Coticule	Belgium	Yellow	26	900	3000	2.18	3.26

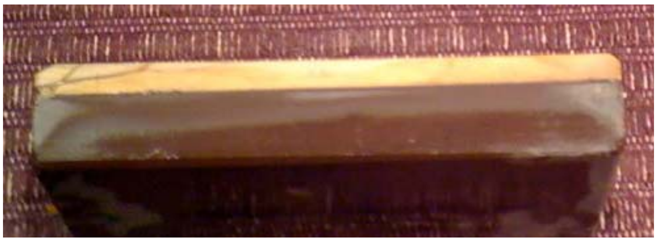
The above values are determined with great care. In practice they may differ due to variations in natural grinding and whetstones. The hardness is determined by an own constructed sclerometer see:
Part 2: http://bosq.home.xs4all.nl/info_20m-66.pdf on page 32. The number in the last column has become higher by a few hard Dressante's.
In the forums, occasionally the relationship between fineness and density (g/cm3) is discussed.
Unfortunately, there is no relationship. The fineness is determined by the size of the garnets and not by the hardness of the matrix. Determining the Coticules density is a problem because of the presence of or Rouge du Salm or Belgian Blue or Portugesche or Brazilian Slate. The table will therefore provisionally not be complete.

Layer	Hardness gram min.	Hardness gram max.	g/cm^3 min.	g/cm^3 max.	Comments
04 La Grosse Blanche	1500	1500	2.88	2.88	Slurry has a characteristic soapy texture. The speed on slurry is fast to moderate. The presence of brown spots predicts a rapid grinding behavior with water. Auto slurry with water. The slurry dulls quickly but gives a very smooth cut.
05 La Grosse Jaune	?	?	?	?	With this slurry is one of the layers slower and grinds the fine and at an average speed. The slurry has a consistency like a lubricant had been added. With the slurry cut is sharp enough to cut armhaar.
06a La Dressante au bleu	1000	3000	2.66	2.66	Moderate cutting speed. Typical feedback in very fine grinding. Velocity of the slurry is moderate, approximately in the middle of the spectrum. The speed with water is slow.
06b La Dressante Upper Layer	1200	3000	2.91	3.21	Clear feedback: the slurry structure changed to almost freezing when using water. The speed may vary from moderately slow (rare) to fast (very common) and sometimes very quickly. Noisy during grinding, also with water. Grinding Speed with water slowly.
07 La Veinette	1200	1200	2.85	2.85	The abrasive properties are very consistent throughout the layer. Is moderately fast on slurry. Is relatively moderate slowly with water.
08 La Petite Blanche	1400	3000	3.03	3.03	The abrasive properties are very consistent throughout the layer. Slurry quickly and (relatively) moderate with water.
09. Les Latneuses	1200	1500	2.85	2.85	The Colored stones are fast with water. Coticule layer where parallel lines are blue hair is fast with slurry. The other side has much less of this blue hairlines and is very fast with slurry. The polishing rate in water varies with the layer.
10. La Nouvelle Veine	1500	1500	3.00	3.00	The abrasive properties properties of the slurry varies from slow to fast, depending on the place in the layer. In the adjacent layer BBW they grind the fastest. With a gradual transition to BBW are fast. The stones with a rapid transition grinding slowly. The stones are often glued in between but are generally fast. With water slow to very slow.
11. La Grise	1200	2000	2.98	3.09	No auto slurry. Speed of slurry is moderate, sometimes a little faster, but usually something on the slow side. Speed with water (relative) slowly.
12. La Verte.	1000	1000	3.26	3.26	No auto slurry. The speed with slurry is moderately slow.
13. La Veine aux Clous	1500	1500	-	-	Too soft for most steels. Many auto slurry which is released during the grinding process. Most auto slurry of all coticules. Bevel adjustment options are limited. The finish under running water is the best of all Coticules ..

Vintage Coticules



Vintage
Vintage is a fancy word for used or second-hand, usually used for a number of years old haute couture garments. Specific information has to be known. An old bottle of wine without a label remains just an old bottle of wine.
In cases where an old Coticule no specific information exists, an old Coticule remains just an old Coticule.
Without a formal and specific identification, we can not speak of a vintage Coticule.



"Vintage" in the context of objects, means something dates from a period with superior production. While there is nothing superior to old Coticules, they are called "vintage" by the trade.
This is misleading and only serves to raise prices of old Coticules on auction websites. Nowadays you can even regularly see Coticules clearly originating from the "Ardennes Coticule" era (after 1998, glued to slate), are referred to as "vintage".



The only Coticules that may be advertised as having the questionable justification "vintage", are Coticules that come in original labelled containers or boxes, the original brand and selection class clearly readable, like Old Rock, Barber's Delight, Old Hickory, and a few others. Some of these were selected for their specific properties. In that case, than you buy a stone at least once marketed as being of a certain quality class with a matching price tag. For the practice of honing it is fairer to speak of second hand Coticules and if you can buy them for a second-hand price they are just as good as a stone that was recently won.



The "Vintage" Coticules come from rudely three areas:
* The Ottré-Regné "deposition.
* The Salmchateau-Ol'Preu deposition.
* The Sart deposition.

Almost all previously won rough honing stones come from two deposits. One deposition extending from the village Regné all the way to the village Ottré, the other extends from Salm - Château to the south of the village of Lierneux. There are a few additional small deposits in the vicinity of the village of Sart. The geological origin of these grindstone deposits is the same.

The deposits are many miles long so there was room for a lot of mines. In the Ottré-Regné deposition I count on 800 meters some 18 mines, now all abandoned. They are not left because the raw material was exhausted but only because it was too expensive to get it to the top. Each of these areas contain different layers. Each layer can be tapped on miles apart, and it is quite possible that the layers vary considerably depending on the conditions during the transformation. It may even be that the same layer has been given different names by the workers in the course of time. Sometimes, the same name is used for layers of a different deposition.
I can not think of any reason why the previously extracted stones would deviate from the currently extracted stones.

The Coticule stone was formed about 480 million years ago and therefore a 100 years more or lesser will make no difference. It is also not true that the best stones were won previously. It was just not known where they were. In the mines was won what was encountered. There are in terms of quality no differences observed between recent and old stones. The variation in quality of Ol'Preu covers the entire spectrum of the older whetstones.

History
The first operational Coticule's quarries date from 1625 or a little earlier, says Michel Caubergs.
After 1686 the bloom trading of Coticule begins and foreign merchants are attracted.
There is a source from 1776 that tells about the export of more than 100,000 honestones annually to all European countries, parts of Asia and the American colonies.
A long list of mine owners and businesses exists since that time to the current date.
In 1800 the mine Old Rock opens and than it will become interesting for us. In 1860 there were about 50 people working in winning Coticule in the realm of Vielsalm.
After 1945, the market declines and in 1982 the mine Old Rock stops its activities.

Determination
It is impossible to tell where an old stone is excavated. There are too many possibilities. Even if there is a mark on it, it is not possible. The traders bought the stones from different companies and then put their own stamp on it.
In other words: your vintage stone is one with many opportunities concerning origin.

Perhaps in future it is possible to determine a stone when a lot of stones are classified with a standardized test method. Now, at the moment there is too little known. We do know several names like L'Allemande, Les Dados, Le Filet Rouge, La Minette, and several others, but we do not know what they looked like and how they behaved during honing. For stones that come from the quarry Ol Preu it seems to be slightly better. The quarry is now operated by "Ardennes Coticule", formally used by Burton Rox and before that by the Burton family.
About this stone is known more. See elsewhere in this booklet.
If we want to be able to determine where the old stones come from then an army of Coticule users have to be willing to subject their stones to a standardized test with many photographs.
I suppose it will be an utopia ever to come to a working taxonomy of old Coticules.

Bonding
The period in which a Coticule whetstone is made is difficult to estimate. An aid thereto may be by looking at the bonding of unnatural combos.
* Until about 1980 resin was used to bond the parts.





Resin is a tough, sticky plant product that is mainly derived from pine trees. Resin sometimes is confused with gum. The difference is that resin is soluble in alcohol, gum however, is soluble in water.

In nature resin occurs among trees that are damaged.



Also the Prunus (Cherry) family is producing resin to protect themselves when damaged.

The tree when damaged in this way produces resin when the bark of the tree is damaged, in order to have protection against viruses and pests which are attacking the inside of the tree. The fossil amber comes from damaged conifers. Some people have an allergic reaction to the resin, it sometimes causes eczema.

The use of bone glue, skin glue or rabbit glue seems unlikely to me since they dissolve in water. We are using water when grinding, honing and polishing.
* Between 1980 and 1986 no Coticules have been produced.



* From 1986 to 1998, non natural combos were glued with Araldite by Burton Rox's. It is striking that the aim was to get a thin bond line.
These are clearly recognizable.

The Coticules were glued to Rouge du Salm. This stone is much redder than the BBW.



* After 1998, non natural combos were glued with epoxy that is thickened with a filler by "Ardennes Coticule". If I'm right they used Coticule sawdust. This also clearly can be identified by the color of the adhesive joint. The Coticules were glued to BBW. The Combo's Carborundum-BBW and La Pierre à aiguiser des Pyrénées-BBW are being glued together with black kit.

Les Petas



This is a layer that has been highly appreciated in the past and is relatively fast. This illustrates once again that speed was a key criterion in the old classification.
Here is a picture of the transverse side of Les Petas that shows the very typical blue stripes of that layer.

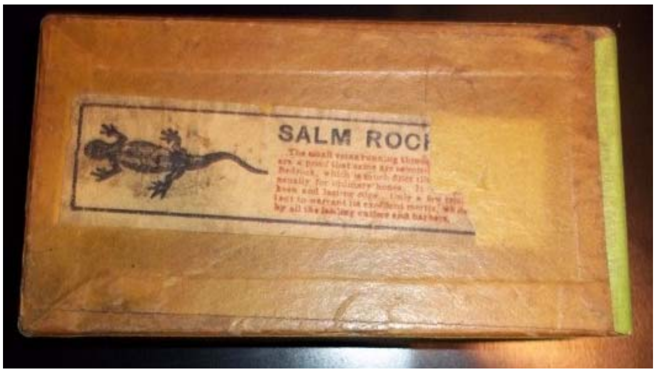
Pike



The stones are probably imported from other companies and mining pits than those active in the Ol'Preu concession (the current Ardennes Coticule Quarry).
The stones would be derived from the ancient Rock company, which was the largest Coticule exporting company for most of its existence. "Old Rock " is the name of a mine, a company and a brand and stands for a quality category. The company not only sold "Old Rock" Coticules, but the company also purchased rough honing chunks from several mines that were supplied as "Old Rock" stones. This makes the confusion even greater. We unfortunately do not know where Pike got his Coticules from. There are a few Coticule layers that are eligible (e.g. the famous "L' Allemande" low) , and even that's is not sure .
"La Veinette" in Ol'Preu looks the same as "La Veinette" at Old Rock. There is a distance of several miles between the two locations.
I already know that La Grise on Regné is exhibiting a significantly bluer grey than the same layer on Ol'Preu.

Edwin Burbank Pike and his brother Isaac Pike, Pike Station in the city of Haverhill, in the late 1800s ran the AF Pike Manufacturing Co. and delivered mainly stones to sharpen scythes. At that time the company practically owned the village Pike, they had warehouses, quarries and production forests in Indiana, Ohio, Mass, NY, Belgium, Germany, Austria, Scotland and other European countries. It is quite possible that they have imported "Old Rock" sharpening stones from Belgium to the America.

Salm Coticule







There are many misunderstandings about this stone.
Many mistakenly think that they have an Escher.
The stones have no label but the boxes do have a label.
Salm is for Salamander (the Caudata family), not Salmen.
So it is not the same. The Salm Rock is not the same as Deep Rock Coticule. Both come from deeper layers, but the Salm is finer. This stone has a grit score of 15,000. It is very fast and fine.

Vieille Roche - Old Rock



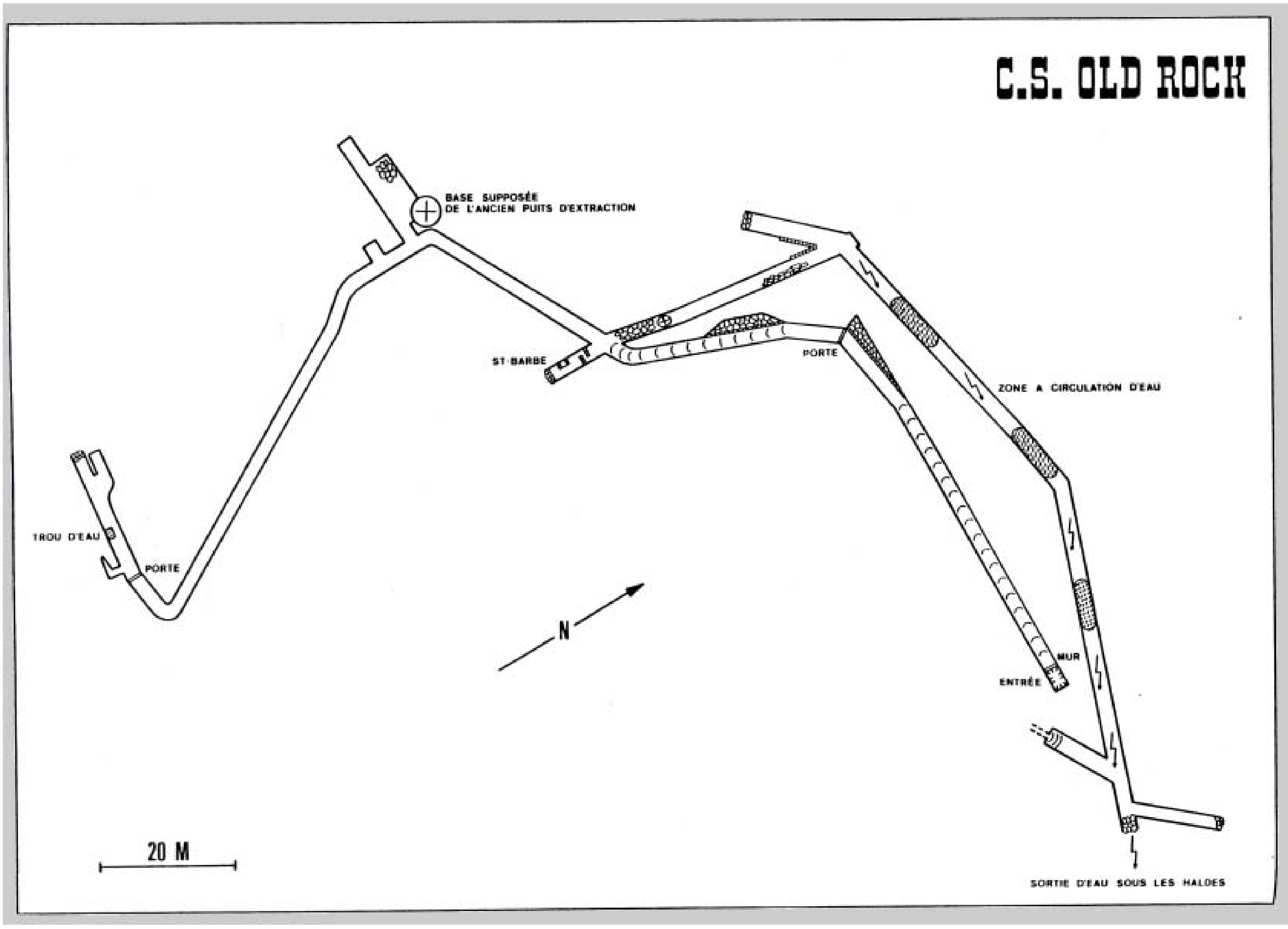




Has a pale, almost white colour.

There are but a few layers that make this colour: the legendary Vieille Roche - Old Rock from the mine and the company with the same name.
A second which can also provide a pale white colour is the La Veinette layer often renamed Old Rock.
The white and pale stones were stones of the highest class. The pale colour is characteristic of Old Rock.

Vielsalm-Old Rock mine
This is a beautiful mine whose entrance is closed by a gate. The development is 300 meters. Half of the gallery is dedicated to Coticule, the other half to slate.
There still are rails along the entire length, winches, a magazine, metal props. The galleries are around enough, about 2 meters in diameter. In the middle is a large space. The height is a good 80 meters. The last site administrator was Mr. Offergeld. This mine is still in good condition.

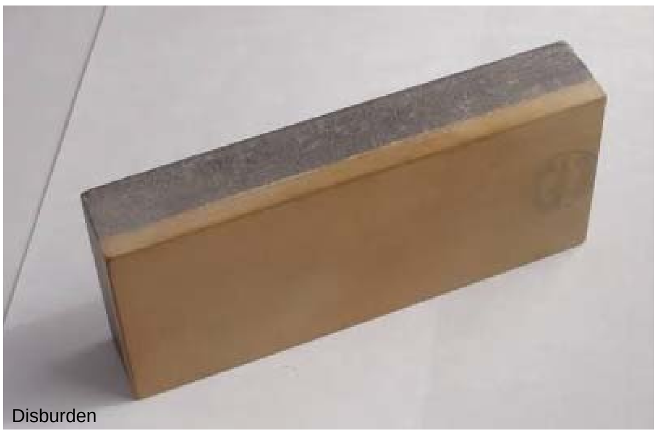




Vintage Droescher Coticule of Choice grade



Disburden


Disburden

B. T. & Co. is the trademark van Bösenberg, Trinks & Co



B.T. & Co. is the trademark of Bösenberg, Trinks & Co They were active as resellers / producers / suppliers of grinding wheels and abrasives and polishers for safety knives, etc, at least until 1923/4. Then it became "Schleifmittel AG vormals Pike & Escher" and moved to Sonneberg, Thuringia. Bösenberg, Trinks and Co. was a successor or subsidiary of J.G. Escher Sohn. The first owner of B.T.Co married a granddaughter of the Escher family. B.T.Co also owned or rented some of the Thuringian quarries prossessed by J.G. Escher. The "Schleifmittel AG" exists until 1963, when it was acquired by the VEB and called "Vereinigte Porzellanwerke". However, the "Schleifmittel AG" still kept the logo used by B.T.Co (man with knife and whetstone) in use for their products, even for a long time, as you can see in the next headline of a letter / invoice from 1937.



Schleifmittel Aktiengesellschaft

SONNEBERG I. THÜR.,
den 13. Februar 1937

Rechnung

Rechnung Nr. 1o17

1o44
2o51
Minder

Firma
14 Feb. 1937
Hermann Seidel,
Leipzig W. 31
Zschochersche Str. 34

Importations Suspended during European War

Belgian Razor Hones

GRADE	PRICE PER DOZEN					
	5″	6″	7″	8″	9″	10″
Common	$1.20	$1.80	$2.40			
Quarter Fine	1.80	2.40	3.00			
Half Fine	2.40	3.60	4.80	$7.80		
No. 1 Fine	3.00	4.80	7.20	12.00	$18.00	$30.00
Superfine	3.60	6.00	10.80	19.20	27.00	36.00
Extra Choice	4.20	7.20	12.00	21.00	36.00	48.00
Extra Choice Sel.	4.20	9.00	15.00	24.00	42.00	54.00
Barbers' Special	4.80	10.80	18.00	33.00	54.00	69.00
Old Hickory	3.60	7.20	12.00	21.00	36.00	48.00
Old Rock	4.20	10.80	22.20	30.00	48.00	60.00

Kohser Coticule



Jewish Historical Museum, 25 x 5 x 2,2 cm. jhm number 02294-02.



Jewish Historical Museum. jhm number 11848.
A well used Coticule.
15,1 x 3,7 x 1,7 cm.

Opinions are divided about a whetstone that is kosher. Coticules that are obtained from deep in the earth are considered to be "pure". "Kosher" means no more than that. In essence, every Coticule is a kosher stone.

During kosher slaughtering knives are sharpened regularly, blood comes thereby on the stone. This is not a problem since Coticules are not porous.
However, it is important that the stone is completely free of cracks and that both the surface and the mass of the Coticule layer is free of any imperfection. That is why perfect Coticules are preferred.
This Coticule usually has a milky white colour. They are extremely rare whetstones!

It is important the stones are kept free of the oil, while oil can contain impure components.
After honing should not be polished on leather, wood is allowed.



Micro jhm02294-02.



Micro jhm11848.



Recent kosher Coticule from Ardennes Coticule.



Macro recent kosher Coticule.

Kohser slaughtering knife



Jewish Historical Museum 63 x 7,5 x 3,1 cm. jhm number 561N02294_abc (c).



Jewish Historical Museum 63 x 7,5 x 3,1 cm. jhm number 149N005 (c).

The knife

For kosher slaughtering (sjechieta) a special knife (called chalef) is used. The knife has to meet strict requirements:
* The blade should be 2 times as long as the neck width of the animal to be slaughtered. For chicken, that length is 9 to 15 cm for larger animals it can be up to 45 cm long.
* To make sure that the knife is suitable for cutting only, there is no point so it cannot be used for stabbing.
* The knife should be as sharp as a razor and should not have any dents, nicks or damage.
* It should be made of good steel so the sharpness of the knife has a long service life.
* Apart from being razor sharp the knife must also be free on three sides completely from any unevenness or blur.
* Any abnormality from the conditions means that the meat of the slaughtered animal is unlawful for consumption.

Grinding

Sharpening knives with whetstones is very time consuming and difficult. Most butchers need 2 years to get the knife so sharp that it can be used in the slaughterhouse.
In literature are mentioned 12 methods to test the sharpness of a knife but I have found no evidence of the contents of all the tests.
One of the test methods is sliding back and forth with the back of a fingernail across the entire length of the cut. This should feel like the cut is oiled.
Hereby a particular sensibility is needed to be able to perform the test well and to feel the smallest damage.
see: http://www.youtube.com/watch?v=KSV0ibmyJcM

The proficiency in ascertaining of such irregularities, as the learning of manually sharpening the blades take the sjocheet (butcher) a lot of training time to complete.

Rouge du Salm / Lorraine

About this type of whetstone are several stories that are sometimes contradictory, or what also occurs, based on fables. To find the right way will be a problem.
In the area of Vielsalm is a shale layer called Veine Lorraine or also Rouge du Salm. In English it is sometimes called Salm Rouge. This is actually a misnomer. The layer has an extremely reddish blue color. The Veine Lorraine is as far as we know the only BBW layer commercially exploited before 1980. Luckily I have been able to acquire some when Burton Rox had taken over the quarry from Burton in 1986. During a visit in 1988, I could buy several stones from the stock of the former company Burton.
The stone is reported now (2013) sporadically in the quarry by Ardennes Coticules.

Confusion
The stone "Pierre de la Lorraine Rouge" comes from the Lorraine region in France and is not Coticule but a red sandstone.



Carriere-Sebeler see http://sebeler.com

Jean-Jacques Perret wrote in his book "La Pogonotomie" written in 1770, about this stone, and came to the conclusion that some were suitable for sharpening a razor and some not.

PIERRES A AIGUISER, SUBSTANCES A POLIR, etc.

(365) Il se fait dans les arts mécaniques une grande consommation de matières minérales pour aiguiser, affûter les instruments tranchants, pour polir les métaux, etc. Les pierres à aiguiser sont le plus souvent des grès, qu'on tire surtout de la formation du grès houiller ou du grès rouge. C'est le grès rouge qui fournit la plupart des meules et des pierres à affûter, de couleur rouge, connues sous le nom de *pierres de Lorraine*, et plusieurs autres qui sont blanchâtres, verdâtres, que l'on connait sous différents noms de localités. On fait aussi des meules avec les grès des terrains tertiaires; ce sont celles qui servent dans la grosse taillanderie, à laquelle

Translation
In the mechanical industry there is a high consumption of minerals for grinding tools and polishing metals.
The grinding wheels usually are made of sandstone, which arose during the formation of coal-sandstone. This is the red sandstone that is most commonly used for grinding.
Red grindstones are called Lorraine stones.
There are several different coloured stones - sometimes whitish - and known by the different names of the sites.
It is a very popular stone for sharpening a scythe, and after use, are stored in a wooden box.
The label may state: "Fine, Smooth And Biting" and can be used with oil or water.

— 44 —

À partir des dimensions décroissantes, on distingue les bouts nos 1, 2, 3, 4, 5, 6, 7, 8.

Selon la qualité, on distingue: l'extra extra, l'extra fin, le fin, le demi-fin. Ces qualités se retrouvent dans toutes les grandeurs.

La pierre dite Lorraine et la pierre dite Levant

La pierre dite *lorêne* est de couleur lie de vin, de forme rectangulaire; elle est débitée dans toutes les dimensions standard. Elle comporte deux variétés de petites dimensions, façonnées en biseau, avec arêtes arrondies, pour l'affûtage des gouges et des couteaux à hévéa: ce sont les *goudjes* dites *lorênes*.

De même, la pierre dite *levant* [*lævã*], de couleur grise et vendue dans toutes les dimensions standard, a fourni deux variétés de *goudjes* dites *levants*, et une troisième variété, façonnée sur mesure, fournie sous l'appellation *pierre dite levant pour sécateur*; cette pierre exportée en grande quantité vers l'Algérie était utilisée notamment par les viticulteurs.

† Charles GASPAR

"L' Industie de la pierre à rasoir dans la Region d Sart-Lierneux".

Translation
In ascending dimension we distinguish chunks number 1, 2, 3, 4, 5, 6, 7, etc. Depending on the quality, there are: extra extra, extra fine, fine, semi-fine. These qualities can be found in all shapes and sizes.

The stones known as Lorraine and Levant
The stone Lorêne is wine red, rectangular and come in all popular sizes. There are also small, wedge-shaped, with rounded edges to sharpen chisels and knives: they are the multiform stones mentioned Lorênes.
The grey stone called Levant, is sold in all standard sizes, in addition to the two variants, there is a third kind with its own form that as "pierre dite levant pour sécateur" was mostly exported in large quantities to Algeria and was used by grape growers.

Charles GASPAR

Rouge du Salm / Lorraine
Prof. E. Goemaere, C. Mullard, Ir. X. Devleeschouwer and Ir. J. Grogna write in "Geology of the L'Ardoise et du Coticule and Terre de Salm" (published by the Geological Service of Belgium in 2008) on "La Lorraine Veine":

(Schist Bleu à Grenats, mais qui ne peut être appelé Coticule) mesure plus 20 cm dans le Gisement Règne - Hébronval - Ottré et 60 to 80 cm au Gisement Thier del Preu -. Thier du Mont ".

Translated it says:
"The Lorraine vein (a blue schist with garnets that cannot be called Coticule) is in the Règne - Hebronval - Ottré layer more than 20 cm thick and in the Thier del Preu -. Thier du Mont layer 60 to 80 cm thick.

In Règne is "La Lorraine" sandwiched between the Coticule layer named "Les Petas" and the Coticule Layer called "L'Allemande" (which means "German" to make confusion worse). But it's more complicated, because all these layers are divided into sub layers, and La Lorraine itself is sandwiched between layers BBW. You will therefore never find a combo Coticule-Lorraine.
It is true that in several combo's you will find a combination that is a very close one. The description of La Dressante au Bleu, the older natural combos La Dressante Upper Layer, La Veinette, La Petite Blanche and La Nouvelle Veine is observed on the back a beautiful wine red colour.



This color is also called "Lie de vin" or Maroon.
Unfortunately, modern whetstones are glued on Brazilian slate because the dark red stone has become rare.
Natural La Veinette has in my opinion the most beautiful color and the La Petit Blanche comes a close second.



HB Slurry backside La Veinette

The colour of the stone varies depending on where the stone is taken out. The usable dark stone usually starts 50 cm before the Coticule's.
Several sources mention that La Lorraine was was mostly sold to joiners, carpenters, cabinet makers, etc. It was also sold as "Pierre à faulx" meaning "whetstone with flaws".
It is a very quick kind of BBW (with red tint).

We're pretty sure the "Rouge du Salm" is the same as Lorraine.
The moment Ardennes Coticule dig deeper into Ol'Preu it is likely Rouge du Salm will be found again. The galleries in the "La Verte" and "La Grise" area are both at the end of the quarry.
The natural combos of these stones have a back that is more consistent with the "Belgian Blue" Whetstone (BBW).

Features
* Wine Red colour.
* Grit 4000 - 8000 depending on thickness of the slurry and the applied pressure.
* Specific weight 2.78 - 3.00 g / cm.
* Hardness 600-2000 grams

Characteristic features
* The "Rouge du Salm" sharpens considerably better than the "Belgian Blue" whetstone.
* Auto-slurry at the soft stone.
* Slower as a Coticule.
* Striking is the long life of the slurry.
* It is possible to bring a knife up to shaving performance. Including the HHT!

Remarks
There were also cut a few round stones of Lorraine stone with a diameter of 200 mm.
The width varied from 20 to 80 mm.





Hatzico

Presumably these stones also Rouge du Salm. There is still a lot to find out through fieldwork on the spot.



015



032



282



302



304



460

BBW Belgian Blue Whetstone



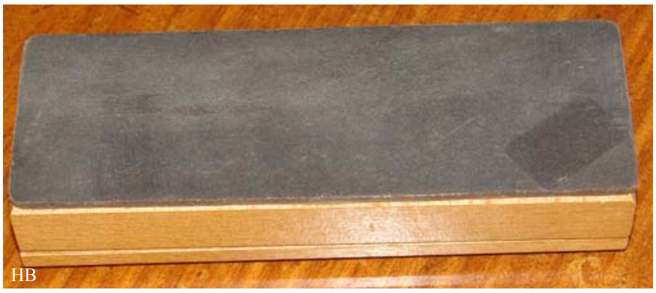
329

Features
* Blue-grey colour.
* Fine structure.
* 5-15 micron Grit (4000 µ).
* Contains 20% -30 garnets.
* Does not absorb water.
* The thickness of the BBW is between 13 and 16 mm.

Characteristic features
* In an absolute sense the Belgian Blue is slower with slurry than many Coticule.
* Thick slurry and a lot of pressure gives a rougher surface.
* Milky slurry and less pressure gives a finer surface.
* Water only and low pressure gives best results.
In this situation it takes hardly anything from hard steel > Rockwell 61.
* Diluting the slurry with water does work, but is not as pronounced as in the Coticule's.
* During diluting the stone retains its eagerness.

Definition
In collaboration with the University of Liège a laboratory study was done in 1996 and 1997, of the slate which was found near the Coticule.
This gave an astonishing result: there was discovered a hone stone with almost identical features.
The Belgian Blue Whetstone (BBW) contains 30% garnets instead of 35-40% in the Coticule. At least 30% of the garnets have a diameter of 5-15 microns.
The garnets are embedded in a matrix of quartz and mica. During the honing process these fine grains part from the "matrix" and form together with the water a fine paste (slurry).
The hardness of the garnets allows fast honing and the roundness of the grains a fine polishing of cutting tools.
BBW has a blue-grey colour and a fine grain structure.
The BBW hones a little slower than Coticule but it has the advantage of greater hardness.
Because this greater hardness BBW will wear out less quickly. It is also less fragile. The BBW is a whetstone, no grindstone.
The great advantage of the blue stone is that layers with a thickness of 15-20, sometimes even 30 cm can be used, so that there can be cut pretty big bank stones. In addition this blue stone is very suitable for gouging stones. The shape can be adjusted to the shape of the gouge by just using ordinary sanding paper grit 120.

Remark
There is a nice gradient of colour and in performance of the various Rouge du Salm / Lorraine and Belgian Blue whetstones.



474 
BBW Slurry stone

 033
BBW Gillette stone

329 

459 

461 
Backside Cotpyr

462 
Backside Cotcarb

De Gillette steen

A bit of history
About 1770 a French barber Jean -Jacques Perret wrote a treatise on self shaving (La Pogonotomie), which provides advice on the use of various shaving products and equipment. His book is the first using the word "razor". In the 18th and 19th century in Sheffield, England, the first steel "Straight" razors were produced.
The bad news was that these razors rapidly dulled so they often needed to be sharpened. In about 1880 the Kämpfe brothers purchased a patent for the first razor with a wire along the razor's edge to avoid damage the skin.
Only one side of the blade could be used and before sharpening the wire had to be removed which is quite a hassle.
In 1895 a merchant, King Camp Gillette, suggests the idea of a replaceable razor. He needed six years to get his idea accepted and realized. In 1901, Gillette cooperated with the engineer William Nickerson in Boston, Massachusetts. Together, they changed the razor into a double-edged blade that could be replaced after it is used one time.
It is a T-shaped razor that opens at the top, so the user could place a new blade after the first had become blunt.
These blades were cut by means of a template, and then forged into shape.
Gillette begon his legendary climb to the summit as King of the U.S. shaving market in 1903, thanks to the high quality of his razor, the low price and sharp marketing approach. In 1903 the total turnover was 51 razors and 168 blades.
The total turnover of the new Gillette razor grew in 1904 to 90,000 razors and 123,000 blades. On 15 November 1904, patent # 775 134 was provided to King C. Gillette for a different type of razor. It was an entirely new concept - a razor with a safe, inexpensive disposable blade.
During the First World War 1914 - 1918 Gillette acquired a mega deal with the U.S. forces to provide razors for any soldier or officer on his way to Europe. This created a huge global promotion for the company and its products.
By the end of the war, about 3.5 million razors and 32 million blades were supplied to the military, and the whole nation started to use the Gillette razor. This was an industrial revolution.
When other people started to use the system, it was felt as an objection to waste the blades. Here and there was a search for a way to make the blades sharp again.
Especially during the war, the blades were scarce and they thought up one method after the other.

There are two types of safety knives
In most of the traditional versions you need to replace the blade by first turn off the handle from the holder. Then place a new blade between the metal plates and it may be screwed together again.

The other is a butterfly knife, also called Twist To Open (TTO). With the butterfly clasp it is a lot easier to replace your blade. You simply turn the handle and the holder flips open automatically, so you can replace the blade.





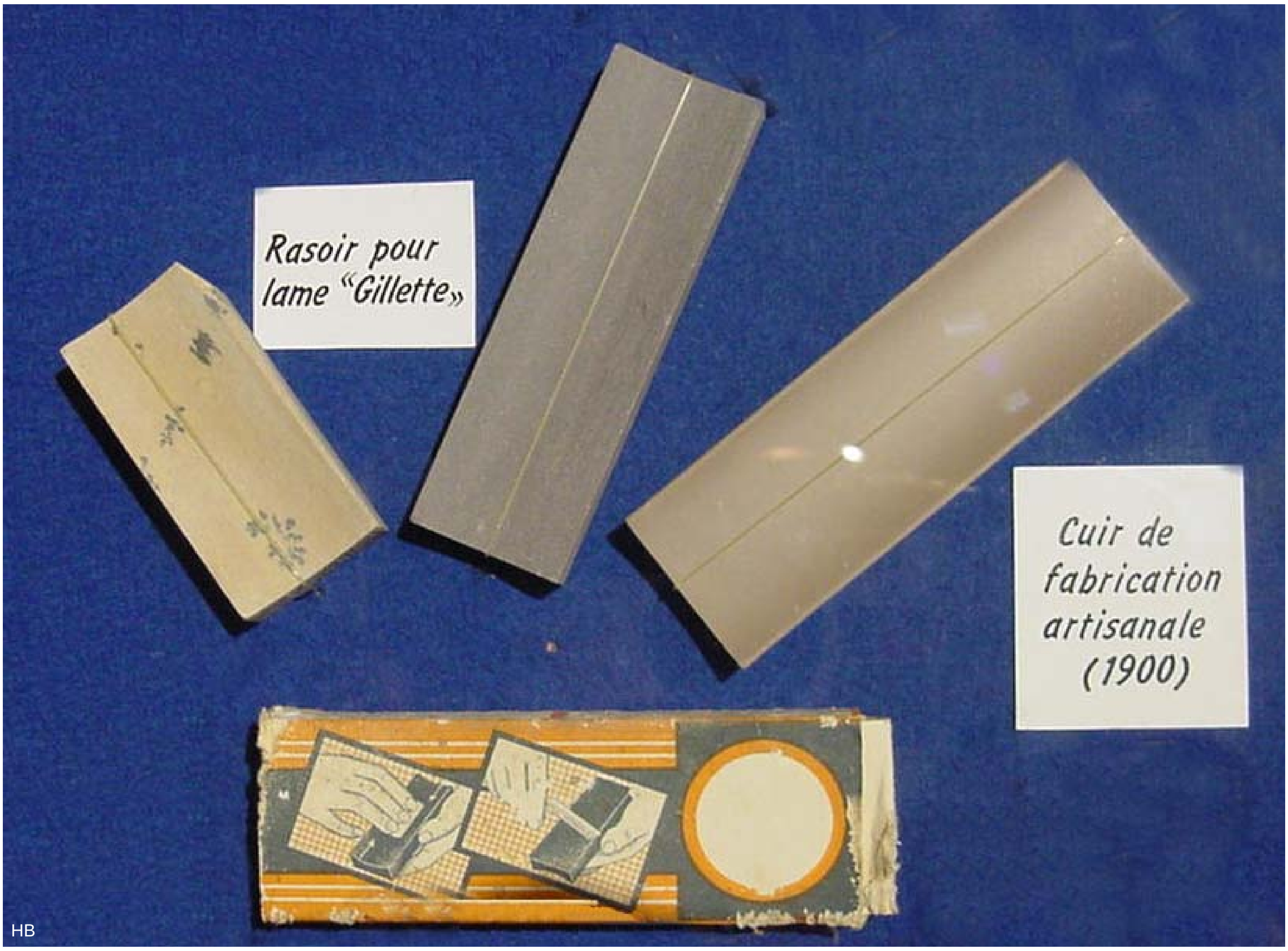
From my father's shaving chest

Dull blades
During the 1st World War it was apart from the price, hard to find new blades. There was scarcity and that leads to all sorts of clever solutions.








Rasoir pour lame "Gillette"
Cuir de fabrication artisanale (1900)
HB


La Pratique
pour rasoirs ordinaires
La Pratique
pour lames genre Gillette
Jörg


"LA PRATIQUE"
NOUVELLE PIERRE NATURELLE
à repasser les rasoirs
(genre Gillette)
et les rasoirs ordinaires
INDISPENSABLE
à tous ceux qui se rasent eux-mêmes...
MARQUE DÉPOSÉE
FABRICATION BELGE
Jörg

8


MODE d'EMPLOI : pour les rasoirs (genre Gillette).
Poser la lame sur la surface concave de la pierre et avec une pression toute légère des doigts, lui imprimer un mouvement de va et vient
Retourner la lame plusieurs fois
Jörg

9


Huiler la surface de la pierre avec de l'huile fluide ou de l'eau. Nettoyer de temps en temps avec de la benzine ou de l'alcool. (se méfier des contrefaçons).
Jörg

10



11



12



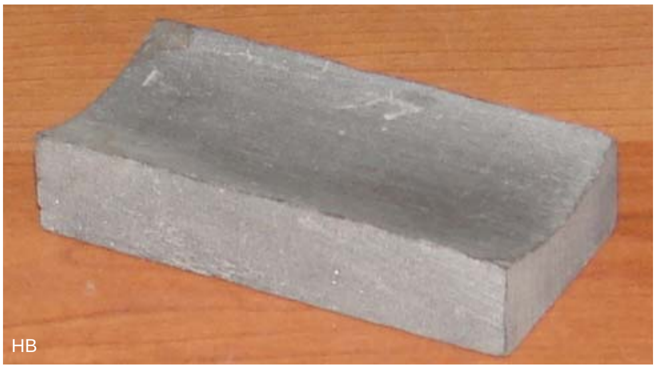
13

Picture 8:
The picture says: "LA PRATQUE" (I think a brand)
New natural stone
For renewing razors (type gillette)
and normal not dispensable razors
for those who shave themself. Belgian product.

Picture 9:
User manual: for all razors (type gillette)
place the blade on the concave surface of the stone and with light pressure of the fingers, you make a back and forth movement. Do this multiple times.

Picture 10:
Oil the surface of the stone with oil or water. Clean with petrol or alcohol every now and then.
The very small print says "se mefier des contre la cons" that would be something like “guard for counterfeiting”.

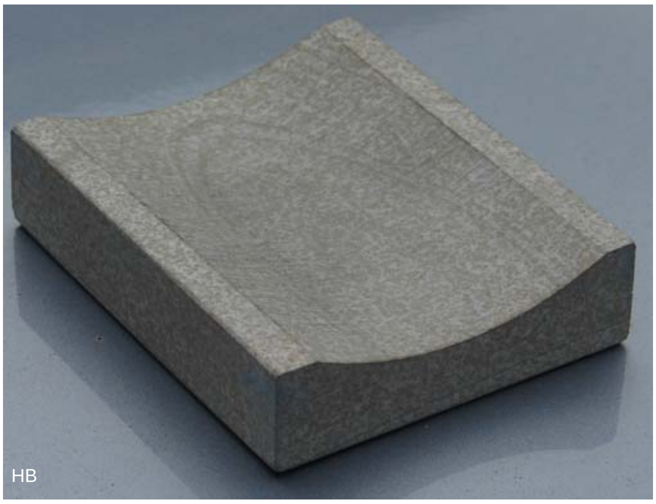
Figure 12 and 13 give a good impression of the colour.
Gillette stones are also found in Belgian blue.
It is sometimes hard to distinguish while the colours vary in both rock types.
Through the microscope the small garnet grains can be seen.



Gillette stone Belgian Blue



My father's "Shaving Wonder".





Kenneth Montgomerie supplied large quantities of these Gillette whetstones to the British Army. A British soldier is "Clean Shaven" according to Kenneth Montgomerie.

Grès de Cierreux



Little is known about the Pseudo Coticule, as it was also named by Theunissen (1971) and Lessuise (1981).
In the Musée du Coticule are a few nice examples on show.
Macroscopically, the color can vary in a wide range. Mostly yellow with shades of grey, green or red. This sandstone is often finely layered. Seen from a mineralogical point of view, this sandstone may exist from the same minerals as Coticule, but their appearance is very different.
The composition of the sandstone varies, usually a Coticule imitation but with visible quartz.
The rock is composed almost entirely of garnet and quartz. It is found in small beds, while all combinations are possible. The fracture surface is always at least microscopically (visible to the naked eye).
The single layers of sandstone: Le Petit Grès and Le Gros Grès are called false veins and cannot be exploited economically. This sandstone can be used to repair other layers for example to position Coticule well.

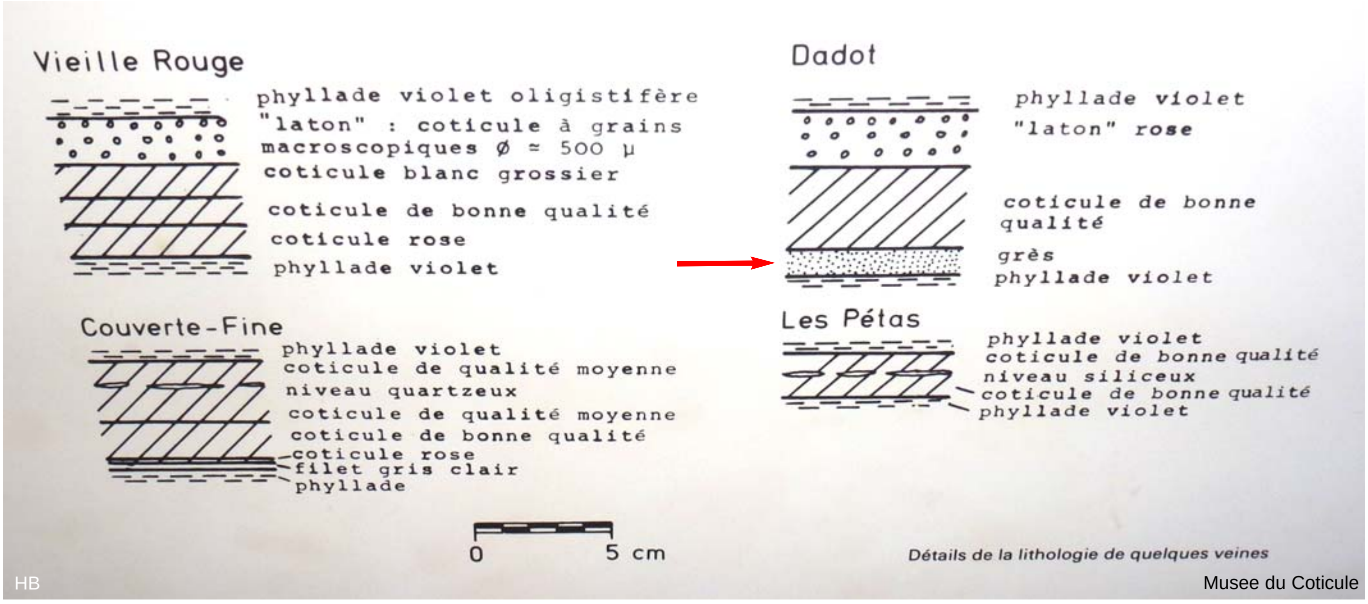




My father's stone.



The hard grains can be seen.





This bank stone is cut from a broken round grinding stone.






HB

HB

HB

HB

HB

HB

Pierre dite Levant



— 44 —

À partir des dimensions décroissantes, on distingue les bouts nos 1, 2, 3, 4, 5, 6, 7, 8.

Selon la qualité, on distingue: l'extra extra, l'extra fin, le fin, le demi-fin. Ces qualités se retrouvent dans toutes les grandeurs.

La pierre dite Lorraine et la pierre dite Levant

La pierre dite *lorêne* est de couleur lie de vin, de forme rectangulaire; elle est débitée dans toutes les dimensions standard. Elle comporte deux variétés de petites dimensions, façonnées en biseau, avec arêtes arrondies, pour l'affûtage des gouges et des couteaux à hévéa: ce sont les *goudjes* dites *lorênes*.

De même, la pierre dite *levant* [*lævã*], de couleur grise et vendue dans toutes les dimensions standard, a fourni deux variétés de *goudjes* dites *levants*, et une troisième variété, façonnée sur mesure, fournie sous l'appellation *pierre dite levant pour sécateur*; cette pierre exportée en grande quantité vers l'Algérie était utilisée notamment par les viticulteurs.

† Charles GASPAR

"L' Industie de la pierre à rasoir dans la Region d Sart-Lierneux".



A "Levant" stone at the Musee du Coticule



"Levant" stones on the sales counter at the Musee du Coticule

Charles Gaspard, author of "L'Industrie de la pierre à rasoir dans la région de Sart-Lierneux", mentions three products: Coticules, "Pierres Lorene" (now known as Belgian Blue Whetstone) and Pierres Levant (roughly translated: "a grey stone sold in all standard sizes and in customized form for sharpening pruning hooks".

The origin of the name is actually very simple.

The stones were recovered in a gallery that ran eastward. Levant is another name for the east. It was called in this way by the workers, and as such the name has appeared in the books. The stones were very suitable for sharpening scythes and related cutting tools such as grape pruning hooks.









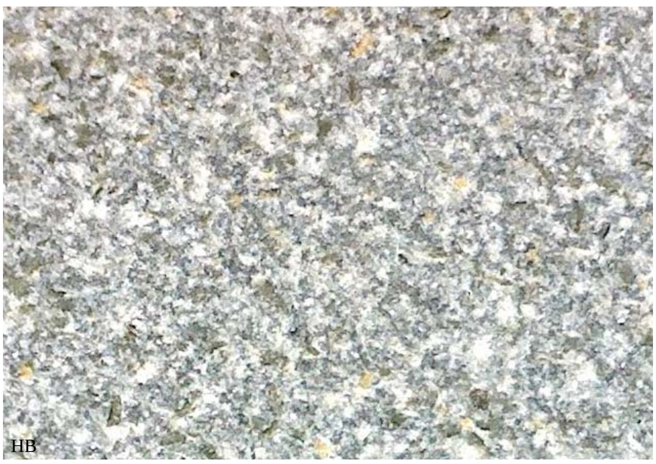








Three "Levant" gouge stones



Pierre la Pyrénées glued to Belgian Blue



A little history
The story goes that an Italian paddler who was passing through the area of the Pyrénées to sell grinding stones, noticed that on the roofs of the houses was a shale - sandstone that was identical to the one he used in his country to make his precious cargo "Pierres Lombardes".
Gradually at the end of the nineteenth century a large Italian community was located in the valley of the Saurat after which the Cuminetti family during three generations made hones from 1903.
It is the last French factory of natural sharpening stones which is located at the foot of the Pyrénées.
During the golden age of the "la Pierre à Faux", there have been a dozen factories employing an average of 7 to 8 persons. Due to technical progress the farmers increasingly used mowers and the demand for grinding wheels for scythes became less and less.
Only the Cuminetti factory has continued processing the shale - sandstone. That was excaved in summer from the galleries of the mine, to be edited in winter in the workshops.



When Alain Soucille heard that Mr Cuminetti wanted to sell, he responded immediately and took over the company in the spring of 2006. Alain Soucille specialized in grinding and polishing materials so that the new acquisition corresponded perfectly to the existing activities.
Two employees of Cuminetti came into the business. In this way 30 years of experience is maintained. There are two types of stone:

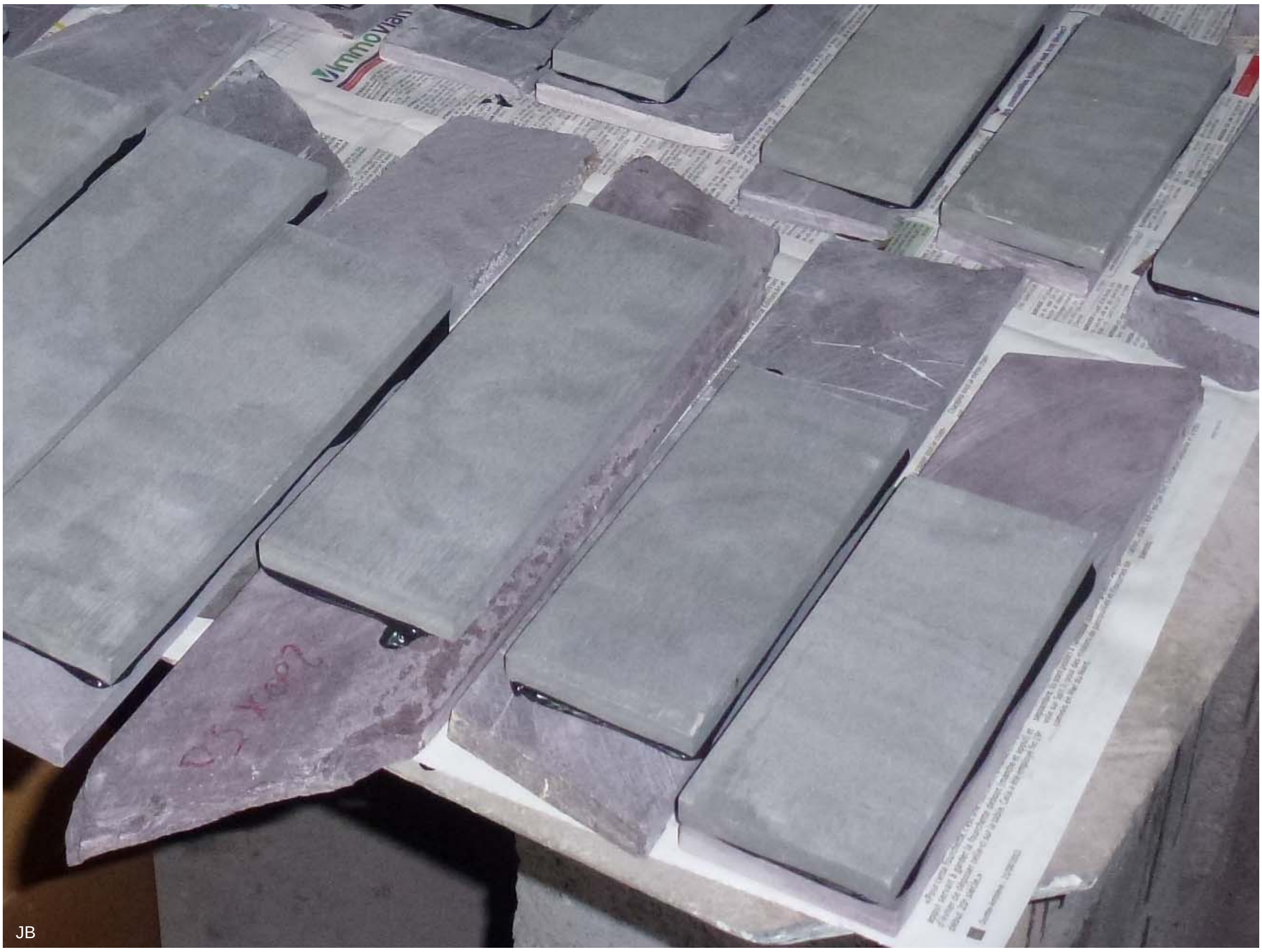
The hard stone
Is extracted from a mine and was originally used in the manufacture of whetstones.
This is a veined stone of which the harder dark parts do the job. It cuts faster than the soft stone but is slightly coarser.

The semi-hard stone
Extracted in an open pit. This is a much more homogeneous dark grey stone. Used for precise and fine grinding.
The semi-hard stone can be polished on one or more sides, so that a smooth surface can be realized as desired for woodworking tools. Per year about 120,000 copies are sold. In addition to which there are exports to Germany, Spain and more recently Belgium. The stone has the effect of grit 1200 and sharpens knives and tools quickly to an acceptable level. This is the perfect preparation for honing on the BBW side.

Combination whetstone La Pyrénées
Here are the two best whetstones of Europe combined en: "Belgian Blue Whetstone " with the famous "Pierre des Pyrénées" from France.
The BBW contains up to 25 % garnets with a diameter of 10 to 20 microns, and is often compared to a 4000 grit stone (Japanese grit system) but it must be remembered that it is a natural product so no stone is 100% identical to another. The effect of grit 4000 may vary considerably and is dependent on the thickness of the slurry, and the pressure exerted thereon. It results with a skilled sharpener into a fine polished burr-free cut.

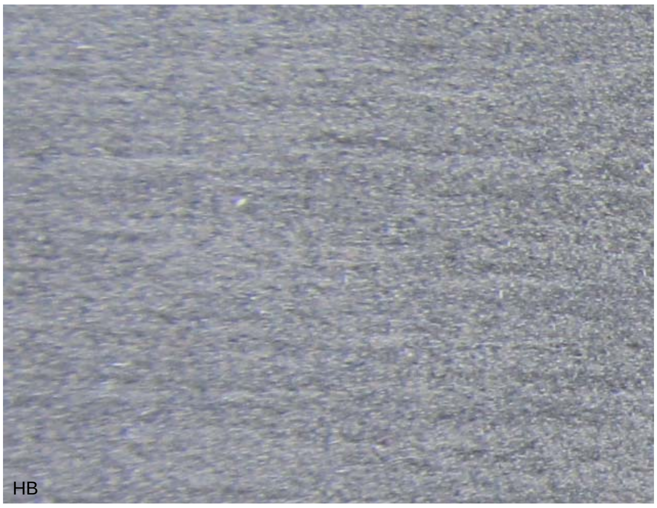
The combination of the semi - precious stone la Pyrénée and BBW is suitable for honing any kind of steel including stainless steel (18/8 and 18/10), Damascus steel and HSS High Speed Steel. The approximately 7 mm thick stone are glued together by Ardennes Coticule with black Wurth stone kit which is able to absorb a difference in thermal expansion. A small tolerance of dimensions is perfectly normal.
Sharpen with water both on the "Pierre des Pyrénées" - side as the BBW side. There is just needed some water on the surface. Start grinding of very blunt and / or damaged blades is done on the " Pierre des Pyrénées " - side, while the optimum sharpness is achieved on the BBW side.


ORCHIDEA
HB

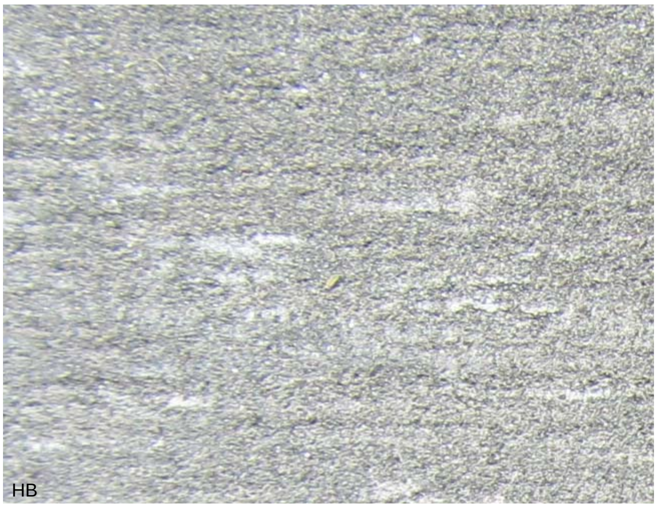

JB


HB


HB


HB


HB


HB


HB

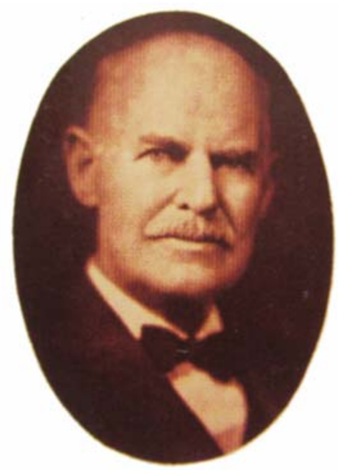
The surface structure is produced by the method of surface grinding. See: *https://www.youtube.com/watch?v=aw5fkyzYmr8*


Backside Cotpyr

Cotcarb, Combo with Carborundum



A bit of history



It started at the base of the Niagara waterfall in 1891. At the age of 35 A.G. Archeson was looking for a very hard mineral. In his attempts he invented Silicon carbide. This was the first synthetic grinding material. He called the mineral Carborundum. By placing a graphite electrode in a pot with sand and cokes under electric current he heated it to 2200 degrees Celsius. To do this a lot of energy was needed where the Niagara waterfall could care for.



In 1893, the Carborundum Company was founded.

The beginning was very modest, but the product was good and came in the right time. Grinding developed more and more into a major operation method. Depending on the distance to the electrode, the colour varied from white to black. The resulting crystals were broken mechanically and sorted through sieves into various particle sizes.
For making bank stones there are several possibilities.

As far as I can tell, the carborundum (SiC) is bound with a ceramic. This consists of a mixture of clay, feldspar, quartz and kaolin. This is baked at temperatures between 1100 and 1300 degrees Celsius. By burning the stone it is difficult to keep it flat and it usually must be levelled. This is a reflection issue as SiC is so hard that it damages diamond. Personally, I flatten them with a flush of SiC powder on a steel plate. And certainly not on my DMT!

The strength of the matrix depends on the temperature and runs from soft to hard, and is presented with letters.
D - E - F - G. - D is very soft while R - S - T are very hard.
Our stone is probably moderately hard.
The grain is very fine and corresponds to 600 to 800.
The structure of the matrix is normal and is represented by the digits 5-6. There are many more options for the binding. Resin is a very interesting one for our purposes.

By gluing SiC on a plate of Belgian Blue Stone a so-called CotCarb combination stone is created. It is an interesting stone to grind gross errors out of knives and other tools. Cotcarb is widely used for sharpening pocket knives. CotCarb is available from small (pocket)stones to large bench stones. Pocket stones are very interesting to use on hikes and wanderings. In emergencies you just don't have to search for a flat stone. To bridge the distance between the Carborundum (600-800) and the Belgian Blue (4000) the CotPyr (1200) is an excellent choice.

Note:
The grain size of natural stones can not be determined. The number 4000 is to obtain an idea but it is never exact. A trained sharpener gets easily the effect of 10,000 on BBW. The abrasive effect depends on too many factors.

Note 2:
Carborundum during grinding is quite aggressive whitch results in relatively deep grooves. Nicer would be an aluminium oxide stone with a finer grain. Grit 1000 would be really nice. Alumina is not as aggressive and gives a smoother result. With a good quality BBW it would be an asset.

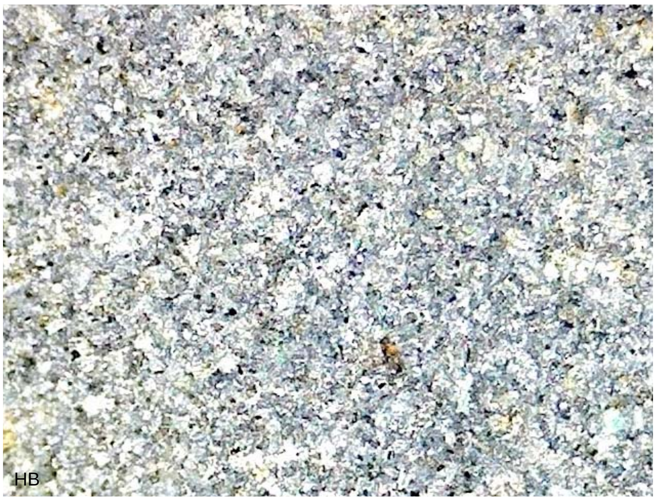

HB


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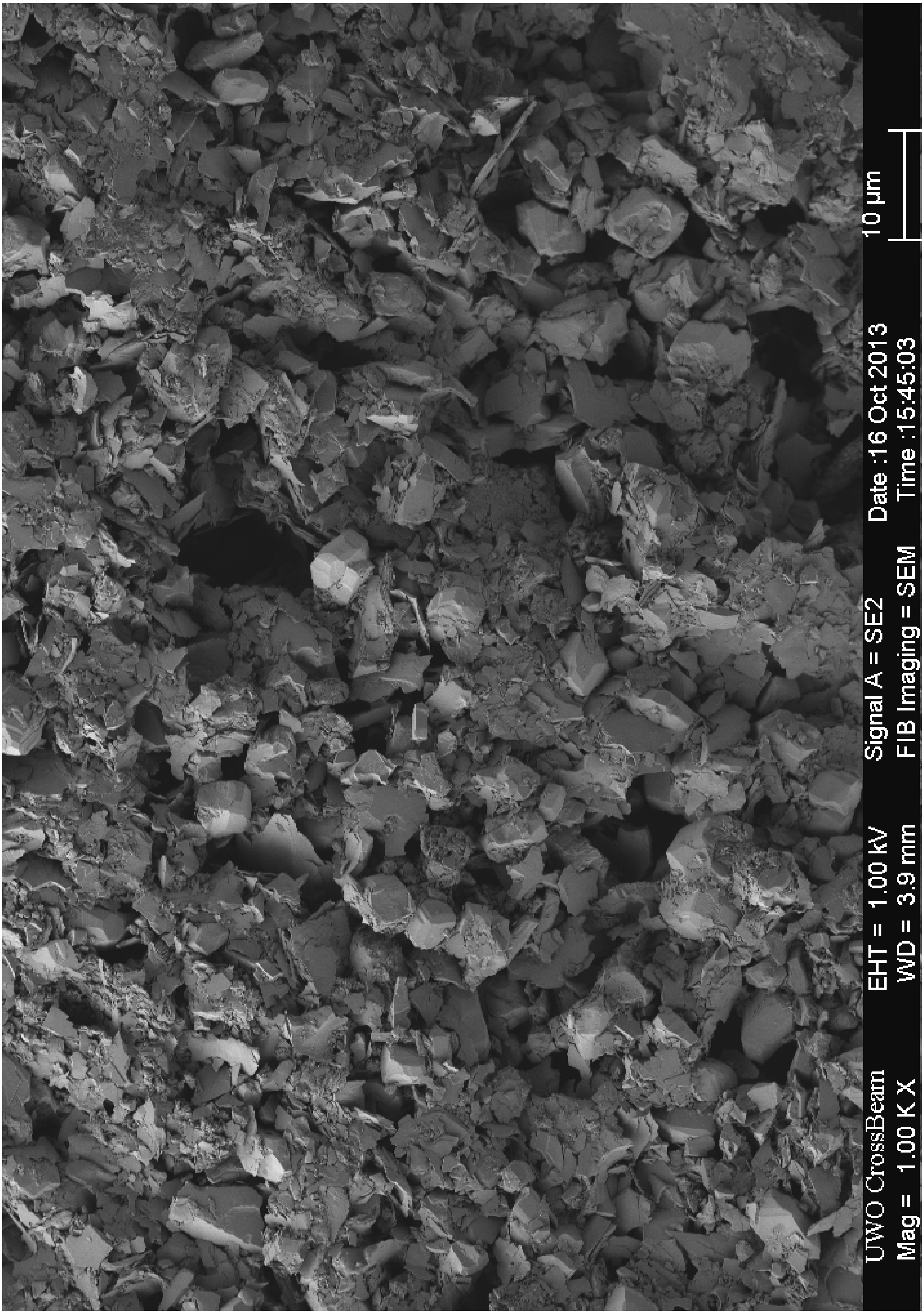

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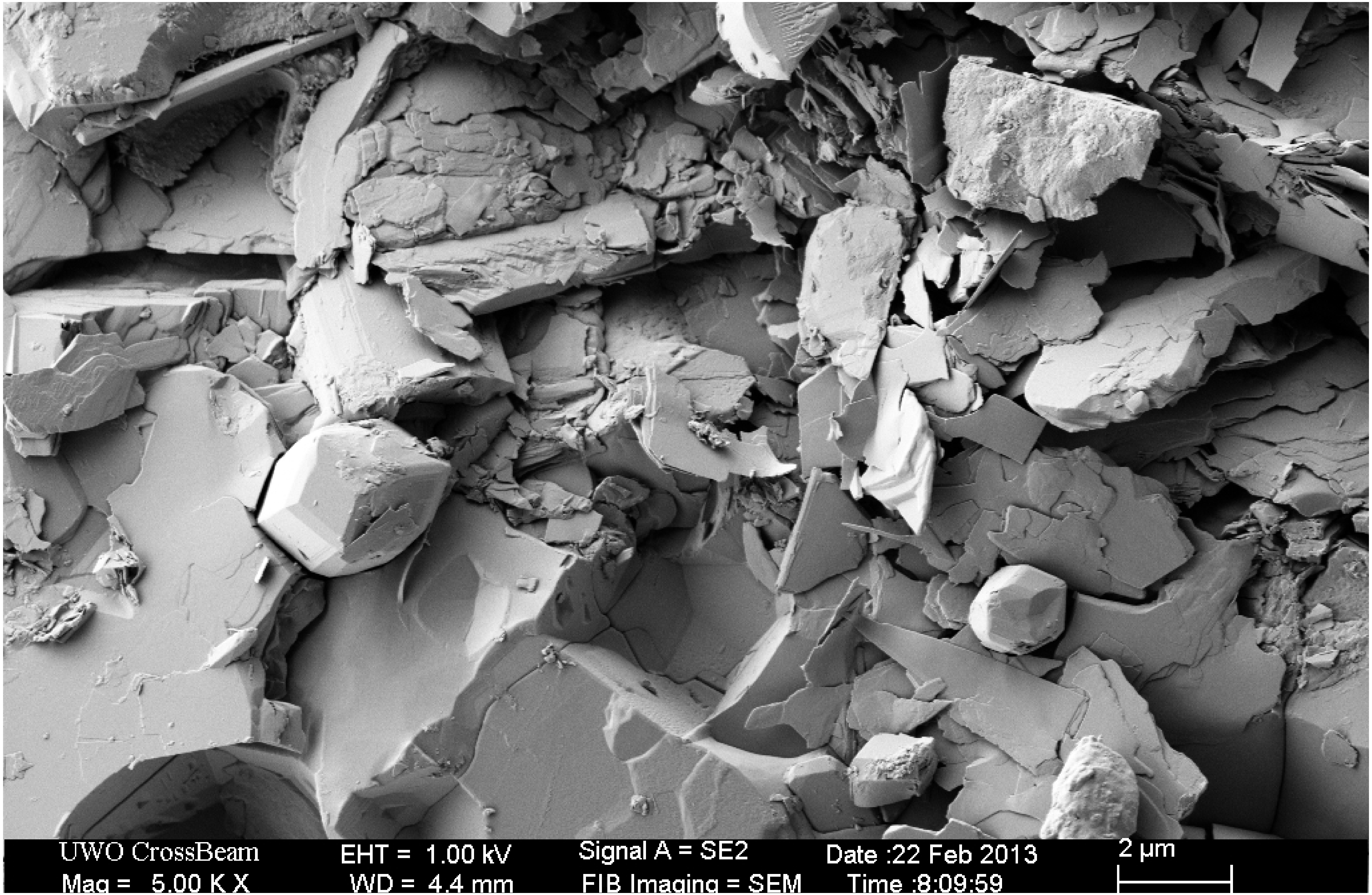

HB


Backside Cotcarb

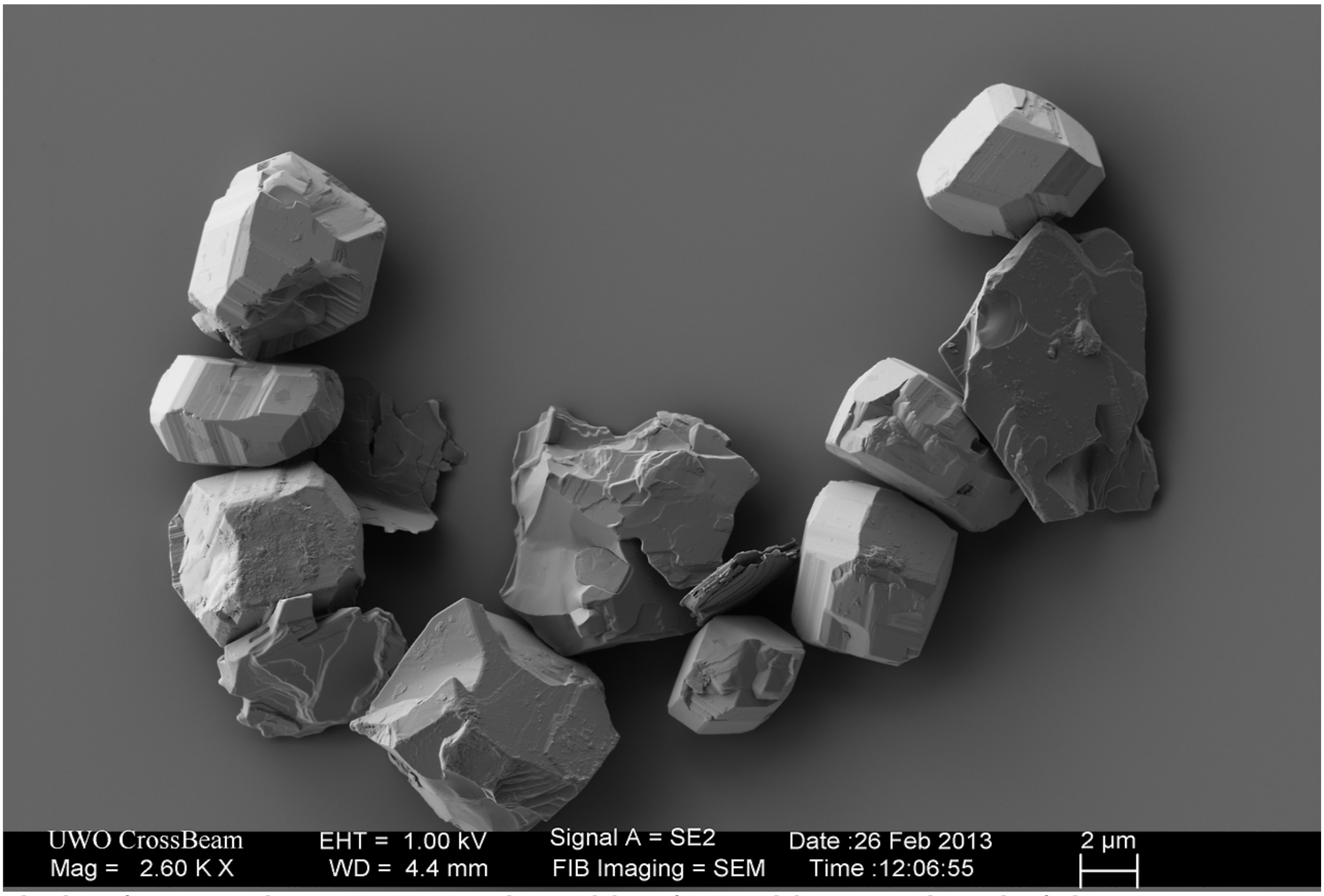
Scanning Electron Microscopy (SEM)



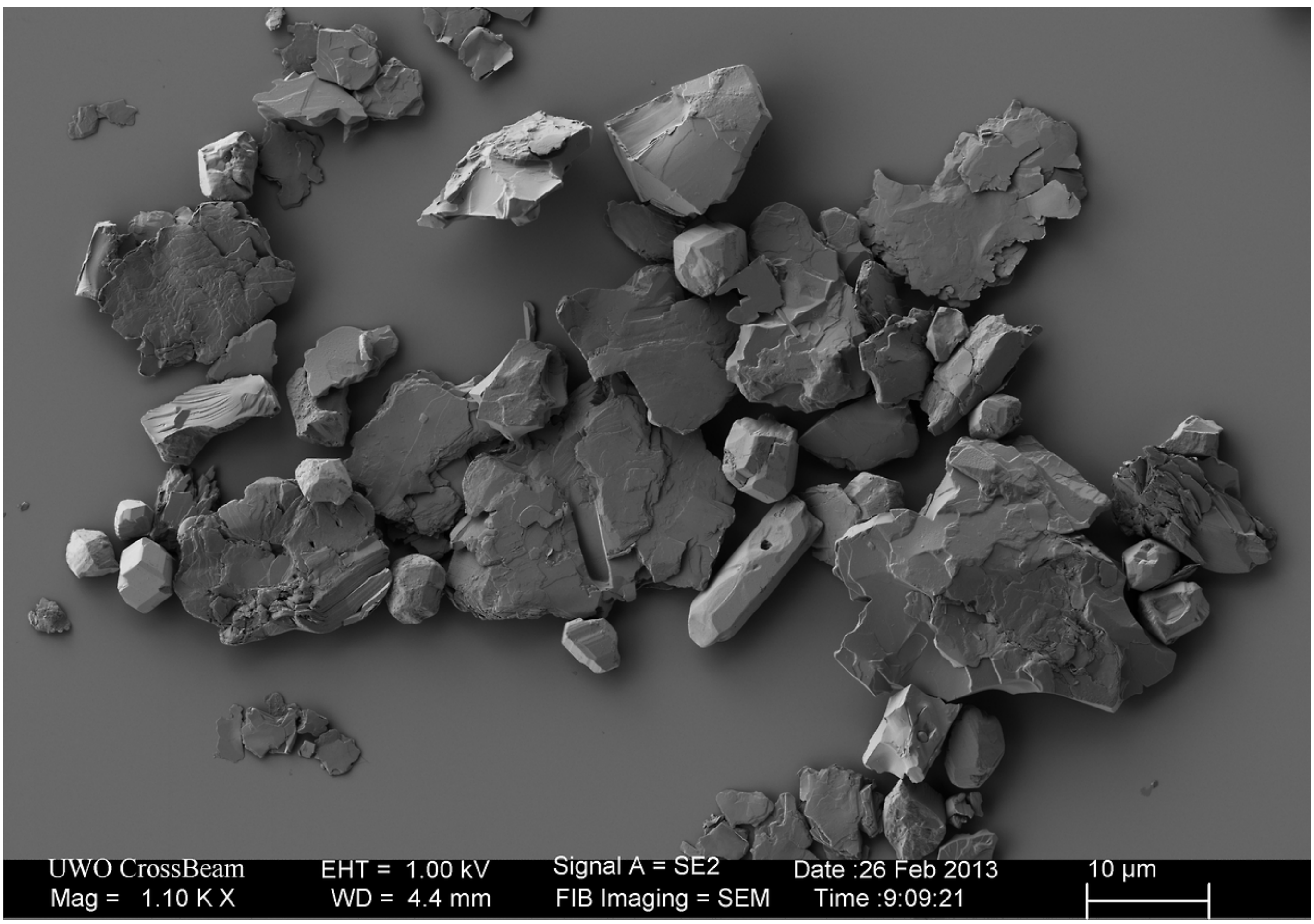
The surface of a Coticule stone containing garnets along with bits of mica and the occasional particle of silica.Thanks to Todd Simpson nanofab.uwo.ca



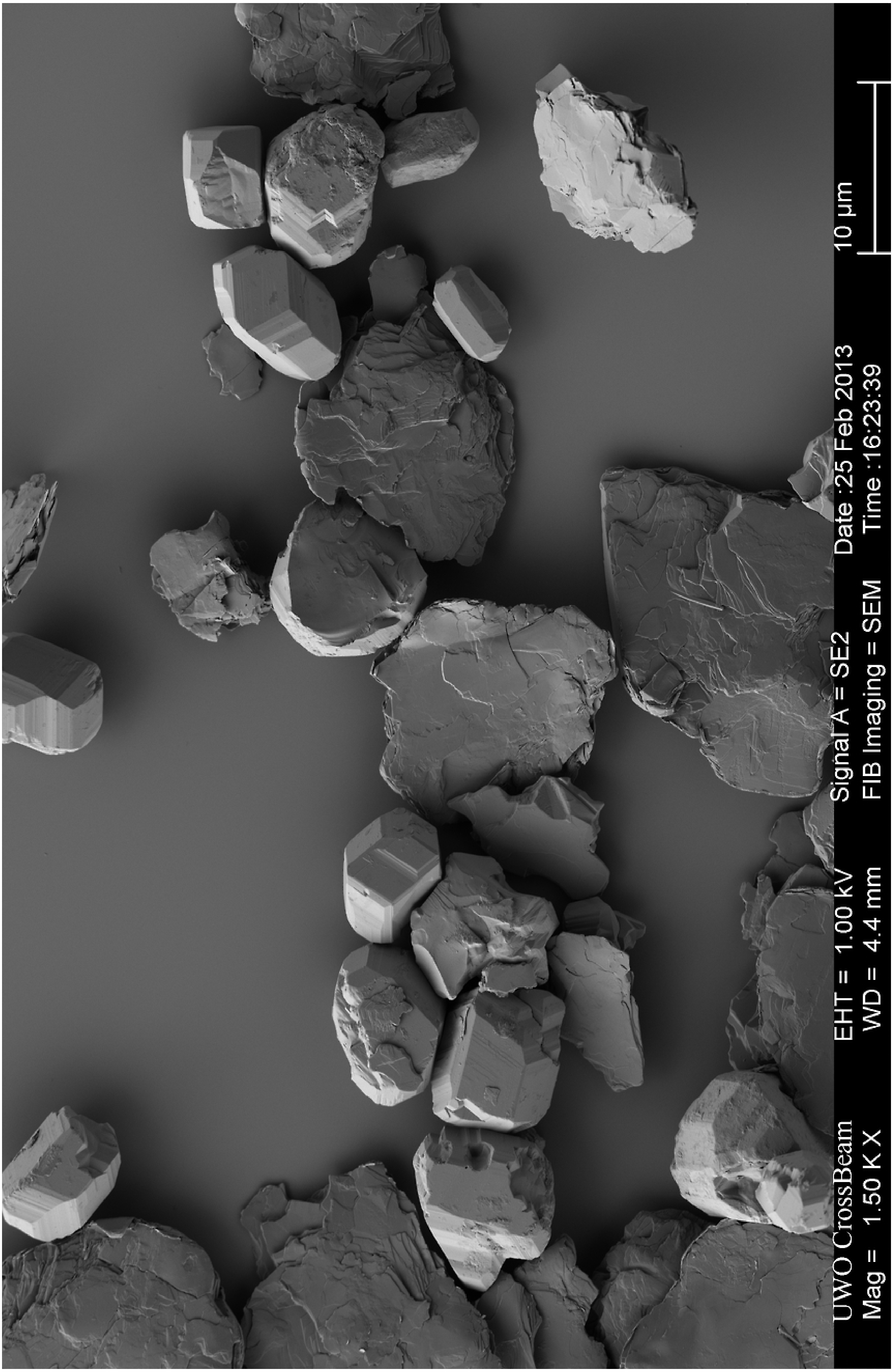
The surface of a Coticule stone containing garnets along with bits of mica and the occasional particle of silica.Thanks to Todd Simpson nanofab.uwo.ca



The slurry from a Coticule, containing garnets along with bits of mica and the occasional particle of silica.
Thanks to Todd Simpson nanofab.uwo.ca



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The slurry from a Coticule, containing garnets along with bits of mica and the occasional particle of silica.Thanks to Todd Simpson nanofab.uwo.ca



A portion of a huge whetstone 30 cm long and 7.5 cm wide.
Photo and owner Tony Geldolf (Sharp Tools).



Coticule



Rouge du Salm / Piere Loraine



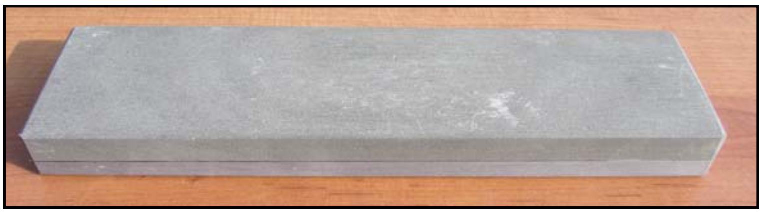
Belgian Blue



Piere dite Levant



Gres de Cierreux



La Pierre à Aiguiser des Pyrénées



CotCarb



Henk and Ge Bos



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